EXPLORING THE NEW YORK SLOW FASHION VALUE CHAIN: LOCAL ANIMALS, FIBERS, AND KNITWEAR

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by

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ABSTRACT

This study explores the prospective development of a Fibershed in the strong fiber community of New York. It draws inspiration from the Northern California Fibershed project. “Fibershed” is a reference to fiber farms, mills, and artisan studios that support regional clothing cultures and economies. The first part of this study explored the diversity of NY fiber farms, with a focus on current marketing strategies implemented by 67 fiber farmers. The second part of the study implemented fiber farmer’s marketing strategies into a consumer survey for locally produced wool, alpaca, and cashmere knitwear. Nine marketing conditions were developed that presented basic information, emphasized local production, and the individuality of the fiber animals. Findings from 250 NY women suggested that the marketing strategies do not influence product evaluation. However, other variables including product personality, user image congruence, and consumer ethnocentricity positively influenced product evaluation. Findings from the consumer survey highlight the difficulty marketing fiber products online, especially among a consumer market that prefers to touch fiber products before purchasing.

BIOGRAPHICAL SKETCH

Helen is a first generation Salvadoran-American. She was born in Los Angeles with her twin sister, Nidia, in 1990. Both grew up watching their *mamita* and *mami* sew clothes for them throughout their childhood. Her father's creativity and expert skill in setting tile throughout many homes in Los Angeles contributed to Helen's creativity. Her interest in fashion design developed when she was 10 and drew hundreds of fashion sketches. She learned how to sew when she attended Downtown Magnets High School, an open magnet school that offered fashion elective courses that mimicked a "mini-major." Helen attended the University of California—Davis to earn her Bachelor of Arts degree in Design with an emphasis in Fashion Design, and minors in Textiles & Clothing, and Writing. At UC Davis, she gained first hand experience with sustainable design. The holistic commitments of faculty and peers to creatively reduce waste to minimize environmental impact inspired Helen to conduct undergraduate research in sustainable fashion practices. During her junior year at UC Davis, she was accepted into the McNair Scholars program, a graduate preparatory program for underrepresented students. She learned how to conduct undergraduate research, and gained insight from U.S.-based designers who upcycle second-hand clothing and textiles. Helen's senior thesis combined sustainable design theory with practice in her collection *Constructed* that drew inspiration from the home her *papi* helped build for her family in 2003. While implementing zero-waste pattern making techniques, her *papi's* work influenced the color palette and shapes of the collection. In 2012, Helen pursued her Master's degree in Apparel Design at Cornell University, and was accepted into the Ph.D. program in 2014.

DEDICATION

I dedicate this work to my parents, Betty and Rene Trejo who have always encouraged me to pursue my interests in fashion design and higher education. I also dedicate this to my twin sister Nidia, and loved one David Arellanes.

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INTRODUCTION

Fast Fashion

Clothes are vital aspects of our lives because they protect us from the environment and allow us to actively create unique identities. Currently the Fast Fashion model is the dominating practice that is implemented by many global apparel companies, including *Forever 21*, *GAP*, and *Hennes & Mauritz* (*H&M*). Fast Fashion involves the rapid production, consumption, and disposal of clothing. Fast Fashions provide consumers with what Lee (2003) calls "instant gratification" that induces a temporary "…euphoric feeling of pride and self-confidence" (p. 34). The short-lived rush of positive feelings fuels a cycle of mass consumption and disposal of clothing as garments are discarded after their trend-value disappears. Fast Fashions are intended to be worn fewer than ten times, which highlights a lack of sustained use for clothing (McAfee, 2004).

Michelle Lee refers to Fast Fashion as "McFashion" because like fast food, it is rapidly and homogenously produced for global consumption (p. 63). With McFashion, the same "tribal maxi" dress from *Forever 21* can be found in Los Angeles, London, and Tokyo. Fast Fashions are not unique with limited material durability, designed precisely to generate eventual feelings of detachment, which can lead the consumer to discard an older item, used or unused, when a new trend is presented.

The rapid production and consumption of low cost Fast Fashions contributes to high volumes of textile waste in the United States. Textile waste includes clothing, sheets, and pillow cases. In 2012, 14.3 million tons of textile waste was generated as municipal solid waste, and only 15% was reclaimed for recycling (Environmental Protection Agency, 2012). The *Council of*

Textile Recycling encourages consumers to donate their used clothing and footwear to different organizations such as *Goodwill* and *St. Vincent De Paul Thrift Stores* (Council for Textile Recycling, 2014). However, donation practices are not driven by ethics of re-use. Consumers are motivated to donate clothes to create more closet space or relieve guilt for buying clothes rarely worn (Ha-Brookshire & Hodges, 2009). Although donation of used clothing does divert textiles from becoming waste in landfills, the amount of used clothes exceeds the demand in the U.S. consumer market. In consequence, many bales of used clothing are shipped to developing countries with a potential of becoming waste there (Isla, 2013; Norris, 2012; Hawley, 2006; Hansen, 2004).

Additionally, the Fast Fashion supply chain propagates "pollution havens" as major clothing brands shift production to developing countries with cheap labor (Hassoun, 2009; McMichael, 1996). Several Greenpeace reports have directed attention toward global environmental impacts induced by the Fast Fashion supply chain (Greenpeace, 2012a, b, c). The studies found toxic chemicals in wastewater streams of manufacturing plants in China, Indonesia, and Mexico, as well as in clothing and footwear of adults and children. These reports shed light on previously invisible "pollution havens" by highlighting issues of water scarcity, pollution, and negative impacts on aquatic ecosystems. Traces of toxins in clothing and footwear are believed to be carcinogenic. Awareness of the fashion industry's environmental impact on developing countries and human health risks are stimulating brand action. In response to the Greenpeace report *Toxic Threads: The Big Fashion Stitch Up* and international public pressure, fifteen major brands including *Levi's, H&M,* and *Valentino* agreed to eliminate toxins in their supply chain by 2020 (Greepeace, 2012a).

The Fast Fashion model has influenced the externalization of environmental impacts among both Fast Fashion, and luxury brands such as *Louis Vuitton* and *Versace*. The *Zero Discharge of Hazardous Chemicals Programme* (ZDHC) formed to aid major brands including *H&M*, *Nike*, and *Marks & Spencer* to reach zero discharge goals by 2020 (ZDHC, 2013). To date, *ZDHC* has provided wastewater testing services, developed a chemical inventory, provided training materials in English and Chinese, worked with industry partners to set phase out dates for certain chemicals, and are identifying alternative dye and finishing solutions (ZDHC Joint Roadmap, 2013). Although these brands are making strides to re-configure their supply chain to limit environmental impact, there are no proposed changes to slow down fashion cycles. Continued linear cycles of rapid consumption and disposal patterns will only add to the global textile waste issue.

Slow Fashion

A focus on bottom line profits that underlies the fast system limits potential to explore local traditions and develop resilient economies grounded in local resources, labor, and culture. As an alternative to "fast," "slow" involves "careful and receptive" thought processes (Honore, 2005). The concept of "slow" was first introduced in Italy in 1986 with the Slow Food Movement that emphasized "slow and prolonged enjoyment" of high quality food to enhance quality of life (Slow Food Manifesto, 1989). With Slow Food, the best local ingredients are selected and fresh food is carefully prepared to ensure the best meal possible. Slow Food emerged in response to fast food chains, like McDonalds, that spurred homogeneity with the rapid production and consumption of food on a global scale. Like Slow Food and Fast Food, Slow Fashion is a response to Fast Fashion.

Slowing down involves “creative activism” and thoughtfulness that can have positive societal and environmental outcomes (Strauss & Faud-Luke 2008, p. 10). Slow Fashion pioneer Kate Fletcher (2008) indicates that thoughtful reflections can lead to stable “holistic thinking and causal chains of responsibility” (p. 162). Slow Fashion parallels Slow Food in its emphasis on uniqueness and quality. Slow Fashion is based on a different set of ethical and resourceful principles compared to Fast Fashion (Fletcher, 2010). Slow is a balance between conceptual and creative processes that can yield clothing of greater social and cultural value (Cataldi, Dickson & Glover, 2010; Fletcher, 2010). It encourages consumers to give full value to the material, social, and cultural worth of clothing.

Kate Fletcher (2008) emphasizes the significance of Janine Benyus’ work that links nature and design, specifically in contrasting fast and slow ecosystems that parallels the fashion system. Species quick to develop tend to be small, have low diversity, short lifecycles, and focus on production quantity rather than quality, much like Fast Fashions that are mass produced for optimal profits, cheaply available in retail stores worldwide, and have short material life spans (Fletcher & Grose, 2012; Berfield, 2011; McAfee, 2004; Lee, 2003). Species slow to develop are larger, have long, complex lifecycles, high species diversity, resiliency, and focus on production quality rather than quantity. These characteristics align with Slow Fashion that embodies more thought in the design process for longevity.

Fletcher and Grose (2012) describe the slow mindset as inducing a greater sense of self through production of diverse products. Designers recognize disparities between local and global systems and recognize externalities like water scarcity and pollution. Designers strive to develop “mutual trust” to create stable, long-lasting relationships within their value chain. Small-scale approaches are integral to Slow Fashion because greater attention to quality is prescribed to

people and the environment. Working on smaller scales can be more effective to reach high quality goals.

Efforts to make clothes long-lasting and timeless are salient to Slow Fashion (Wanders, 2008). Hand-crafted elements, customization, limited production, and slight variation in limited edition designs add value to clothing. Additionally, quality workmanship, thoughtful aesthetics, functionality, and timeless versatility are salient attributes (Littrell, Reilly & Stout, 1992). The limited edition, one-of-a-kind artisanship appeal of Slow Fashions align with characteristics of luxury market products (Joy et al., 2012). The creation of a Slow Fashion, global sustainable luxury brand has the potential to steer consumers towards more sustainable clothing behaviors and lifestyles (Joy et al., 2012; Lewis & Loker, 2010).

A cultural shift towards "reflective consumption" can help reduce high clothing consumption and disposal rates that induce negative environmental-social-cultural implications on a global scale (Cataldi, Dickson & Grover, 2010, p. 27; Manzini, 1994). With less consumption and greater attention to the special qualities and functionality of clothing and textiles, consumers may develop empathy, attachment, and love for clothes that can propel sustained, long-term relationships (Chapman, 2005). Consumers rely on clothes to cover their bodies and help them create unique identities, while clothes rely on the care and use of consumers to survive as material products. Awareness of this co-dependency can lead to perpetual use, and long-term relationships that can reduce clothing as waste. Manzini (1994) proposes a "Consumption to Care" philosophy that embodies a culture that will re-emerge and places great worth on the process of caring for material objects. Ideally, consumers will develop strong relationships with clothes based on notions that clothes are physically and culturally

durable. This aligns well with Chapman's notion of co-dependent relationships among consumers and material products.

A part of creating a cultural shift in consumption is increasing consumer awareness of Slow Fashion value chains and the true value of clothing, including its ecological, social, and cultural worth. Several apparel brands have launched marketing campaigns to inform consumers about their production processes including *Patagonia, Icebreaker,* and *Nike*. Several companies including *Patagonia* and *Eileen Fisher*, have also launched take back programs to promote textile recycling and reduce the risk of their clothing becoming textile waste.

To garner greater awareness of the value of clothing Kate Fletcher initiated the *Local Wisdom* project in 2009. The project highlights the sentimental connections people have with their clothing based on their "craft of use" (Fletcher, 2012). This is their use of clothing overtime, including personal histories and narratives. Satisfaction with clothing dictates its social, cultural, and material durability as relationships change. *Local Wisdom* community photo shoots in the U.S., UK, Australia, and New Zealand convey unique "vignettes," or personal stories of strong relationships people have with their clothing. Vignettes of sentimental attachment that are based on thriftiness, memories, and a sense of a shared identity align with Manzini's "Consumption to Care" philosophy as the useful lives of clothes are extended.

Thinking beyond personal narratives, drawing attention to community and agroecosystem contributions can also help create a cultural shift in how clothing is used and valued to a greater extent. An agroecosystem is land altered for human use to produce fibers, food, or other agricultural products (Conway, 1987). It is a complex interplay between cultivating and harvesting fibers, proper land management, and marketing fibers for economic profit. The *Soil to Skin: 150 Mile Wardrobe* project by Slow Fashion expert Rebecca Burgess (2011) embodies the

collective agroecosystem contributions of regional artisans, fiber farmers, and mill owners. Burgess' *Soil to Skin* wardrobe exemplifies collaborative community-based production processes. Burgess limited the geographic span of artisans, and sourcing of raw materials like cotton, wool, and alpaca fibers, to fiber farms within a 150-mile radius. Sourcing diverse fiber resources and labor from a regional landscape reflects Fletcher's (2008) assertion that Slow Fashion parallels ecosystems. In the creation of one-a-kind clothing, attention is drawn to quality based on careful hand-craftsmanship, diverse fibers, and long complex lifecycles of clothing.

This unique project conveyed that it is possible to create an entire wardrobe from the diverse agricultural fiber resources in the Mendocino County landscape with local expertise and labor. Sally Fox, renowned organic cotton and wool farmer, indicates that the availability of local fiber resources is part of a "renaissance" that alludes to a clothing and textile culture that existed before 20th century outsourcing and globalization (Markoulakis, 2014). The success of the *Soil to Skin* project, and the subsequent establishment of the non-profit organization *Fibershed*, indicates that a culture of artisanship and agroecosystems with diverse fibers, persists and offers a channel for Slow Fashions that are strongly linked with local agriculture.

The concepts of local wisdom and "fibersheds" are not new. All communities have drawn knowledge and made use of local resources in the past, and many continue to do so. Founder and editor of *Wild Fibers* magazine, Linda Cortright, highlights the symbiotic relationships between people and fibers overtime.[1] She has traveled to India, the Himalayas, Uzbekistan, Bolivia, and Alaska to name a few countries. *Wild Fibers* has raised awareness of rich historical traditions and continued uses of natural animal fibers by expert farmers, nomads, and shepherds.

[1] Linda Cortright was inspired by her flock of cashmere goats in Maine, and founded *Wild Fibers* in 2004.

What distinguishes Fibershed is the effort to create a clothing and textiles economy to meet 21st century expectations of healthy clothing value chains as an alternative to the Fast Fashion paradigm. A vibrant discussion about low carbon emissions, carbon sequestration, and fiber animals as valuable ecosystem contributors highlights the ecological component of the value chain (DeLonge, 2014; Bieg, Burgess, Kahn et al., 2014). The social value associated with fiber arts education in spinning fibers, hand-knitting, and weaving align with the 21st century resurgence of interest in fiber arts. Highlighting the physical infrastructure (fiber farms, mills, artisan studios), and the social infrastructure (venues for collective engagement) foster a strong sense of cultural value as part of a larger community of people interested in clothing and agriculture. Additionally, Fibershed emphasizes the significance of harvesting diverse fiber resources in a regional landscape, the value of farmers, mill owners, and artisans with prospects to scale up and make the ideals of Slow Fashion a reality with social, economic, and cultural impact.

CHAPTER 2

DIVSERIFIED AGRICULTURE: U.S. FIBER FARMS

An agricultural landscape may seem largely distanced from major fashion cities in the U.S. However, fiber farms with sheep, alpacas, and goats are emerging in urban, rural, and "in-between" spaces. One example is the *Soil to Skin* project in Marin, Mendocino County that is in close proximity to the major fashion city San Francisco (Thomas, 2014; Rantisi, 2006). Mendocino County is considered urban based on population density; however, 45% of the county is classified as rural (City-Data, 2013). Similarly, Ithaca is housed in Tompkins County, and is considered an urban metropolitan community with a population of approximately 30,335 people (US Census Bureau, 2012). Although Ithaca is an urban center it can also be considered an "in between" space since it is a college town, and the population varies based on the student population throughout the year (Green, Lewis & Jirousek, 2013).

Disentangling the Rural-Urban Binary

The dichotomy between urban and rural suggests that rural spaces are static and fixed, rather than dynamic and thriving. Urban and rural communities are often defined by population density and geographic boundaries; however, in the U.S., the boundaries of what is "urban" and "rural" is increasingly blurred as people move in between these areas (Champion & Hugo, 2004). Additionally, city boundaries are extending into previously "rural" areas to meet the needs of increasing populations (Brown & Cromartie, 2004). Blurring of urban and rural boundaries, as well as community member fluidity across these spaces sheds light on spaces "in between" such as suburbs, college towns, and natural forests (Kaiser, 2013).

Biases toward rural and urban spaces limit perceptions and expectations of what these spaces are and can become. Brown and Cromartie describe a "pro-rural bias" in the U.S., based

on agricultural nostalgia and mythical visions of what rural life is. The industrial revolution spurred the development of urban centers and decentralized rural areas; however, the binaries are increasingly ambiguous in the 21st century. "Rurality" is multi-dimensional with ecological, economic, institutional, and socio-cultural complexities. Each community is distinct and complex. Autonomy and creative agency in these communities challenge assumptions that rural and "in-between" places are static based on the "pro-rural bias" (Halfacree, 2004). In comparison, urban centers are immediately given progressive and dynamic characteristics as they are multi-dimensional with dense populations (Brown & Cromartie, 2004).

The special edition of *Critical Studies in Fashion & Beauty* explores socio-cultural dynamics "in between" urban-rural communities (Kaiser, 2013). "Fashion," an artistic and cultural urban phenomenon, is depicted as being fluid, occurring in small towns, college towns, nature-based towns, and anywhere "in between." Fashion is not only dictated by urban bias depictions in fashion magazines and runways; people "in between" communities contribute to fashion as they create unique subcultures (Bernstein & Kaiser, 2013; Green, Lewis & Jirousek, 2013). The creation of subcultures is a trickle up, or bottom up approach that suggests communal social-cultural capacity to contribute to community innovation. This research suggests that these communities are not static, but dynamic like urban centers.

Agriculture is increasingly entering urban spaces, which further conveys the complex synergies among urban, rural, and "in between" spaces. Urban agriculture with the cultivation of local food has emerged to support community self-sufficiency, and address food insecurity issues (Brown, 2002). Animals including chickens and goats are also permitted to be in cities. To date, some cities that permit them include Seattle, San Diego, and St. Louis (Richardson, 2014).[2] The

[2] Other cities that allow chickens and goats are Pasadena, Oakland, Portland, Cleveland, Fort Worth, Berkeley, and St. Paul (Richardson, 2014).

3.5 acre *Heartfelt Fiber Farm* in the city of Santa Rosa, California is an example of a fiber farm in an urban area, where the unique mix of sheep, goats, and camelid fiber animals is unexpected (Spurgin, 2014). A new perspective on urban and rural is developing as agriculture is not limited to rural areas, and is expanding into urban and "in between" spaces.

U.S. Fiber Farm & Mill infrastructure

Fiber farms with sheep, alpacas, and goats have emerged as a lifestyle choice (Parry, 2013; Tapper & Zucker, 2008; Hassanein, 1999). Personal narratives from female fiber farmers reflect their commitment to social, cultural, ecosystem, and local economic development in their regions (Parry, 2013; Jorrin, 2013; Friend, 2011). The visibility of female farmers is consistent with the emerging amounts of women who identify as "principal operators" on their farm.[3] These women are generally older, highly educated, and have another occupation off the farm. The number of U.S. female farmers has nearly tripled between 1978 and 2007, from 5 to 14%, 306,200 to 1 million women (Hoppe & Korb, 2013; USDA, 2007). These women have complex identities with roles as entrepreneurs, business partners, workers, and bookkeepers (Brasier et al., 2014). These farm businesses are relatively small with annual revenues of $10,000 or less (Hoppe & Korb, 2013). [4]

Micro-scale mills have emerged to support small fiber farms and the larger fiber community although there has been a general decline in U.S. clothing manufacturers in the last 30 years (Parry, 2013; Hodges & Frank, 2013). A detrimental aspect of managing a mill is

[3] In 2007, 45% of women specialized in raising livestock, which contributed to 16% of sales income. Approximately 6% of women raised sheep and goats, which were considered "commodity specializations;" primarily raised for their meat or milk. These women made up 25% of all sheep farmers in the U.S. Hoppe and Korb (2013) highlighted that 13% of women reported earning no income from their sheep, while 94% earned less than $10,000. Their farm size was smaller than the average, with 84 acres or fewer. One criteria for a farm business to be included as a "commodity specialization" was the presence of over 2,000 farms. In the report, angora rabbits and "fur-bearing animals" were left out; alpacas were listed under "miscellaneous livestock" and the amount of women owned alpaca farms is unknown.

[4] In 2007, median income earned on the farm was $4,200, and median off-farm income was $42,600.

harnessing extensive knowledge about fleeces to create valuable products that can generate revenue for customers (Parry, 2013). Many mill owners co-manage fiber and mill micro-enterprises. In the city of Mitchell Nebraska, the *Heartland Brown Sheep Company* was originally a sheep farm, and became a mill in 1980 (Weiss, 2012).[5] The mill processes regionally sourced wool and adds value through the creation of yarn for retail. *Stonehedge Fiber Mill* in the city of Jordan Michigan was established in 1999; the owner, Deborah McDermott also has a sheep farm and is an expert in making yarns (Parry, 2013). *Stonehedge Fiber Mill* received national attention for providing 4,000 pounds of yarn to *Ralph Lauren*, which was used to create sweaters and caps for the 2014 Winter Olympics closing ceremony (WLNS, 2013). In 2014, *Stonehedge Fiber Mill* was awarded "Business of the Year" by the East Jordan Area Chamber of Commerce for "Outstanding dedication and service to the community." This suggests that fiber processing infrastructure can add social and cultural value while stimulating economic growth in a community. The presence of these mills in urban, rural, and "in between" spaces contributes to the complex links between agroecosystems (farms) the larger Slow Fashion value chain (mills, retail outlets).

Fiber Community Visibility

Fiber farmers and mill owners are primarily "in between" urban and rural areas, which blurs their accessibility based on geographic location. To address this, they have developed strategies to increase their visibility and community reach. Fiber farmers bring their fiber animals to Farmer's Markets and community festivals, which provide unique opportunities for the public to interact with their fiber animals. Farmers also have open farm days and invite the public to visit their farms. Farmers convey their expertise in direct conversations with visitors (Tapper &

[5] The mill is also described to be located in a rural town of Western Nebraska.

Zucker, 2008). In tours at the *Tregelly's Fiber Farm* in Massachusetts, farmers discuss the animal's native country, and narrate information about the animal's personality. In the *Misty Meadow Icelandics Farm* in Minnesota, farmers invite the public to learn about shearing sheep for wool. At the *Victory Ranch* in New Mexico, farmers host spinning, knitting, and weaving workshops to promote fiber arts. There are several opportunities for the public to interact with farmers and gain insight into the cultural value of fiber farmers and their animals.

Catherine Friend, author of the memoir *Sheepish: Two Women, Fifty Sheep and Enough Wool to Save the Planet* expresses the cultural significance of her sheep farm:

> It feels as if we're part of a web, one of the slender but strong threads that city dwellers retain a connection to a way of life that, for most people, disappeared decades ago (Friend, 2011, p. 83).

By having a community presence, fiber farmers direct attention to their "part of the web" and reflect their cultural, social, and ecological worth to society; and by extension the value of their fiber animals. Additionally, fiber farmers and mill owners have collectively organized regional fiber trails, fiber festivals, and associations to interact, and economically support each other as a niche community interested in fibers, animals, clothing, and textiles (Macchi, 2009).

The online social forum *Ravelry.com* provides artisans, like knitters and crocheters, fiber farmers, and mill owners, opportunities to interact with each other without geographic constraints. *Ravelry* has maintained stable growth and activity as a social media site focused on the fiber community (Ravelry, 2014; Pisa, 2013). In late February 2014, *Ravelry* founders published a short report in celebration of hosting 4 million "ravelers." The U.S. had the third largest population of "ravelers" after Iceland and Canada.[6] The visibility of fiber farmers, mill owners, and artisans suggests momentum for future stability as a strong niche community.

[6] This is based on self-reported country on ravelry.com. In Iceland there were 346 ravelers per every 10,000 people; in the U.S. there were 84 per every 10,000 people as of February 2014.

CHAPTER 3

EMERGING STABILITY OF ANIMAL FIBER CLOTHING & TEXTILE ECONOMIES

> Without small farms, nonfarmers—which is 99.3 percent of our population—would lose the opportunity to see animals, touch them, and meet the people who raise them. Shepherds and other small farmers don't get paid to make and keep those connections, however. They must have a product to sell, and people must buy it.
> (Fiber Farmer, Catherine Friend, 2011, p. 121)

Consumer Market

Potential consumers for domestic, natural clothing and textiles are the emerging LOHAS, "Lifestyles of Health and Sustainability," market segment (Woolmark, 2014; Pawson & Perkins, 2013; Peterson, Hustvedt & Chen, 2012; Denend & Shiv, 2011; Jackson, 2011). LOHAS consumers contribute to a $290 billion U.S. market for sustainable and socially responsible products (Rogers, 2011). LOHAS consumers are willing to pay the appropriate price for products that benefit the well-being of the planet and people.

Several studies suggest consumer interest in domestic, in-state natural fiber products. Sneedon, Soutar, and Lee (2014) indicate that American consumers prefer wool clothing manufactured in the U.S. with a reasonable price point, and from an independent brand. There is also emerging consumer interest in region-specific fibers. According to Peterson, Hustvedt, and Chen (2012), a sample of American consumers prefer domestically produced wool gloves rather than acrylic. Consumers are also willing to pay a higher price for wool sweaters with a state label like Texas, compared to U.S. or Australian labeled sweaters (Hustvedt, Carroll, & Bernard, 2013). Consumers from Texas, Georgia, and Virginia are willing to pay a higher amount for socks knitted in the U.S. from wool, alpaca fibers, and mohair harvested in their respective state (Hustvedt, Bernard, & Peterson, 2012). These studies highlight the value of supporting fiber

farm and mill micro-enterprises by conveying consumer interest in diverse fibers that are domestic, state-specific to the U.S.

Global Fashion & Textile Industry Partnerships

The natural animal fiber industry is not limited to micro-level domestic scale partnerships, macro-level international partnerships between wool farms and the fashion industry suggest global consumer interest. Leading fashion designers have implemented *Woolmark* wool into their clothing lines, including *Gucci*, *Missoni*, *Georgio Armani*, *Vivienne Westwood*, *Alexander Wang*, and *Narcisco Rodriguez*. The *Woolmark* brand has become a globally recognized symbol for high quality Australian Merino wool over the last 50 years (Woolmark, 2014).

Several major apparel brands such as *Icebreaker*, *Eileen Fisher*, *Ibex*, and *Smartwool* consistently use animal fibers that economically supports the stability of international fiber farms. Pawson and Perkins (2013) define the value of wool as the dynamic interplay of the following attributes:

> …sustaining financial return, maintaining productive landscapes, protecting and conserving natural environments, owning and managing farms intergenerationally, enhancing rural community, producing high-quality farm outputs, sustaining relationships with value chain members, making stylish fit-for-purpose woolen products, and increasing consumer demand for those products (p. 210).

Relationships among fiber farmers and major clothing brands represent the Slow Fashion value chain co-dependency that stimulates high-quality productivity and economic stability. Links are created among farmers, fiber animals, and consumers. Marketing strategies including *ZQ* certification, *Icebreaker's* "Baacode," and *Eileen Fisher's* "Alpaca Story" lead to global recognition of the ecological, social, cultural, and economic value of clothing under the Slow Fashion paradigm.

New Zealand Trade & Enterprise Certification

New Zealand Trade and Enterprise, a wool sales, marketing, and innovation company, established *ZQ* certification to support and expand the wool industry. *NZTE* highlight the benefits of using merino wool for clothes, and provide certification standards for fiber farmers to meet environmental and socially responsible goals (Denend & Shiv, 2011). Infographics highlight how wool's crimp provides natural insulation to keep the skin warm, and thin wool provides a cooling effect to prevent sweating. The symbiotic fiber-to-skin relationship emphasizes the material value of natural, animal fibers for clothing. On farm audits are conducted by third party representatives to assure that the farm meets certification standards of ethical treatment of sheep, environmental and economic sustainability, and traceability throughout the value chain. (Denend & Shiv, 2011). The farmer's input is valued and *ZQ* certification provides consumers with information regarding fiber farmer socially responsibility and sustainability practices. Clothing brands with *ZQ* certification include *Icebreaker*, *SmartWool*, *Ibex*, and *John Smedley*.

Icebreaker

Icebreaker, a New Zealand outdoor apparel brand, further distinguishes itself by connecting consumers to a clothing narrative (Pawson & Perkins, 2013). *NZTE* and *Icebreaker* have been instrumental to the "re-valuation of fine wool" with stories that create links between farmers, sheep, and consumers (p. 213). Rob Achen, *Icebreaker* VP of product and creative director, explains:

> There's an emotional story of where the wool comes from, but then there's the other part of the science of how merino performs…(in Bloomstein & Halvorson, 2012)

The "Baacode" is a tool for consumers to track and learn about the origins and story of their *Icebreaker* garment. Each *Icebreaker* product has a unique "Baacode" that encourages

consumers to “meet the merino that grew this” and learn about environmental ethics, animal welfare, and sustainability attributes. Short videos of farmers, sheep, and the New Zealand pasture add “emotional and sensorial” appeal to the *Icebreaker* brand. These marketing strategies align with CEO Jeremy Moon’s goals of forming “new relationships between people, people and nature, and between merino and the human body” as an “Icebreaker” (in Perkins & Pawson). These examples reflect *Icebreaker’s* aims to increase consumer awareness about their value chain in marketing campaigns that align with Slow Fashion principles.

Eileen Fisher

Eileen Fisher is a New York based women’s wear company that has a strong reputation in sustainability and social responsibility. The company is known for producing timeless, versatile clothes. In 2013, the company launched the GREEN EILEEN campaign, which encouraged customers to bring back their used *Eileen Fisher* clothes for textile recycling (Eileen Fisher, 2014). According to Director Cheryl Campbell, the company received over 10,000 garments in the first week. Used clothes were donated in clean conditions and some were wrapped in tissue paper. This implies the care and respect customers have for their *Eileen Fisher* clothes even when returning it and reflects aspects of Manzini’s “Consumption to Care” philosophy. Customers understand the material, social, and cultural worth of the clothing and return it as worthy clothes that can have an extended life.

With a diversified range of sustainable fibers from organic cotton to Peruvian alpaca, *Eileen Fisher’s* “Eco-Collection” provides insight about their sustainable, fair trade value chain (Black, 2013; Fisher, 2014). The “Peru Chronicles” video series extends consumer knowledge about the synergistic relationship between Peruvian farmers, alpacas, and the *Eileen Fisher* brand. The ‘Alpaca Story’ video emphasizes how alpaca fibers are distinct from plant fibers

because they come from animals, fellow living beings. Alpacas have a history in Peru, and *Eileen Fisher* employees take pride in helping nurture the relationships between the local people and alpacas with year-round employment opportunities. In the video, alpacas are personified and described as having souls, personalities, and expression in their eyes. An anecdote about an alpaca cria is highlighted, and the mother alpaca is personified as being caring and loving towards her newborn. Drawing attention to the emotional and sentimental qualities of fiber animals and people, including farmers and *Eileen Fisher* employees, conveys holistic reflections that occur in the Slow Fashion value chain.

Global Marketing Strategies

Icebreaker and *Eileen Fisher* stand out with their animal-centric marketing strategies. *Icebreaker* sheds light on the rich wool and sheep culture of New Zealand, and *Eileen Fisher* highlights the value of alpaca fibers from alpacas native to Peru. Both brands pay homage to the animal's heritage story, and provide fiber farmers with opportunities for economic growth. As global clothing brands, they draw attention to the dynamic interplay among local and global agroecosystems. *Icebreaker* has fueled the re-emergence of the New Zealand wool industry to reach a global market; *Eileen Fisher* has fostered the creation of a fair trade international U.S.-Peruvian alpaca fiber and clothing industry to also reach a global market.

Domestic Fashion & Textile Industry Partnerships

Relationships among U.S.-based fiber farmers and clothing brands also persist. *Pendleton Woolen Mills* has partnered with domestic sheep farmers to produce high quality clothing and textiles over the past 150 years (Trinidad, 2012). Charles Bishop, Vice President of mill production, explained consumer's interest in sustainability and eagerness to know the story of the clothing. Since *Pendleton* is vertically integrated with a strong domestic textile legacy, they are

able to provide consumers with mill tours in the U.S. and expand knowledge about domestic wool processing.

Pendleton also supports the economic growth and stability of alpaca fiber farms that can offer consumers luxury textiles and clothing from alpaca fibers. Fiber farmers, Erin and Paul Egan, manage the "Alpaca Blanket Project," which involves sourcing alpaca fibers from over 700 farms in 35 states (Adams, 2013). Farmers earn $3 to $5 per pound of high quality alpaca fleece. *Pendleton* processes blankets and scarves with fibers sourced from the cooperative alpaca fiber pools. Scarves range from $15 to $60, and blankets are over $200. The products are sold on the "Alpaca Blanket" website, Farmer's Markets, and farmer's retail stores. The partnership between *Pendleton* and the "Alpaca Blanket Project" exemplifies a successful collaboration between the textile industry, and fiber farmers.

Ramblers Way, a small clothing company, also supports the economic stability and development of fiber farmers in the U.S. (Ramblers Way, 2012). Fibers are sourced from domestic Rambouillet sheep farms and manufactured in U.S. mills. Joseph Redman, President of the retail outlet "Joseph's of Portland" in Maine, explains that customers specifically seek *Ramblers Way* clothes. Customers support the company's strife to rejuvenate the domestic clothing and textile industry with environmental standards that foster the growth of U.S. fiber farms, and offer economic and community development opportunities. The existence of these fiber farm-clothing brand partnerships on global and domestic scales provides optimism for future growth and stability.

CHAPTER 4

THEORETICAL FRAMEWORK

Slow Fashion encourages the extended use of clothing and textiles based on its personal, social, cultural, and ecological value. Options to take back clothes to retailers like Patagonia and Eileen Fisher for continued reuse, reflects Slow Fashion in action. This chapter highlights key theoretical frameworks that are helping propel the re-development of the domestic clothing and textiles industry.

Cradle to Cradle & Fibershed Soil-to-Soil

Slow Fashion embodies closed loop thinking cycles (Fletcher, 2008; Fletcher & Grose, 2012). Sustainable development pioneers, McDonough and Braungart (2002; 2013), coined the term "Cradle to Cradle," which emanates regenerative closed loops. If a product is designed with "Cradle to Cradle" in mind, no waste is generated because everything has a cyclical lifecycle as a "biological" or "technical" nutrient. "Biological nutrients" include any products that can safely decompose into the soil to nurture life in an agroecosystem, or ecosystem. Technical nutrients are man-made products that can continually be re-used through chemical or mechanical re-processing at the end of the product's useful life. In this study, the focus is "biological" nutrients, which are animal fibers that can enter into a closed loop cycle.

Fibershed proposes the "Soil to Soil" model that align with "Cradle to Cradle" goals and is specific to clothing and textiles. The "Soil to Soil" conceptual model in Figure 1 conveys how sheep and wool can continuously provide ecosystem services as sheep tend the landscape and nurture the soil (Fibershed, 2013; Bieg, Burgess, Kahn et al., 2014). Sheep co-products like lanolin, hides, and meat can also enter the "Soil to Soil" model as additional ecological nutrients for the cycle (Bieg, Burgess, Kahn et al., 2014; Henry, 2011).

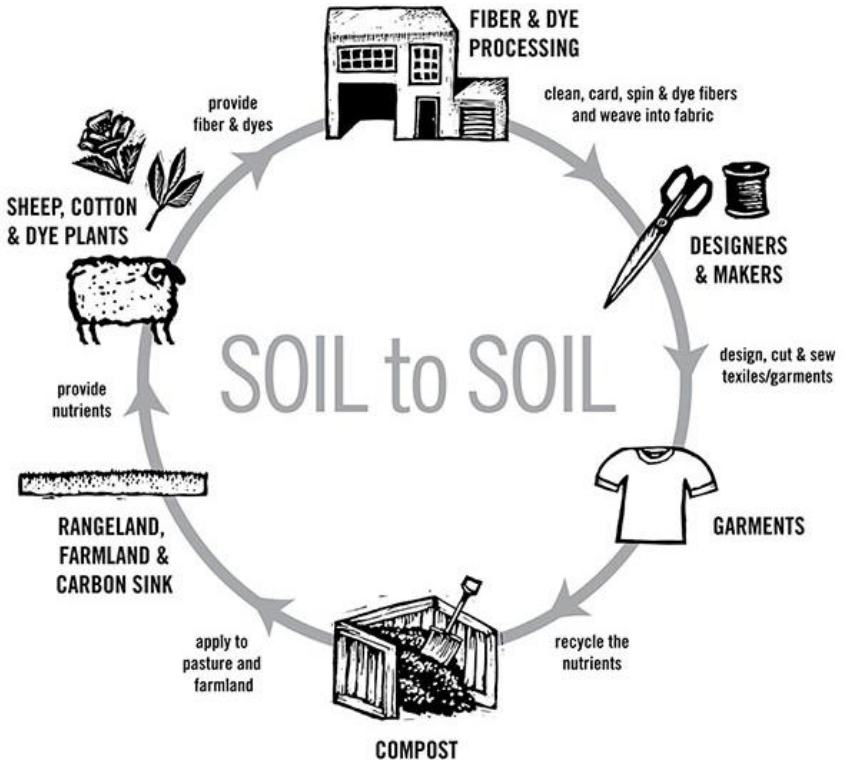


Figure 1: Conceptual Fibershed "Soil to Soil" model (Bieg, Burgess, Kahn et al., 2014). Spot Illustrations by Ron and Joe/ Shuttershock, 2013.

In a scenario life cycle assessment, Fibershed wool garments are noted to be sinks for greenhouse gases based on the sheep's land use (DeLonge, 2014). Sheep can also support sustainable land management practices. Sheep ecosystem contributions include grazing on land unsuitable for other agriculture, carbon sequestration, and nurturing the soil with the production of urine and feces, which supports the growth of vegetation. Currently, the "Star Creek Land Stewards" offer grazing services with sheep and goats in Northern California (Bush, 2013). Sheep provide weed control, help improve vegetation, wildlife habitat, and reduce the risk of wild fires. In the Hudson Valley of New York, Intensive Rotational Targeted Grazing with sheep have been an effective strategy to control an invasive plant species, and allows the recovery of plant vegetation (Girard, 2011). Ecosystem services provided by sheep highlight their ecological contributions to the Slow Fashion value chain.

Wool is not the only animal fiber to which the "Soil to Soil" model can apply to. It can include fibers from animals such as angora goats, cashmere goats, alpacas, angora rabbits, and llamas. The fibers and diverse animals themselves are also ecological contributors, and valuable members of the Slow Fashion value chain.

U.S. Fiber Farm Cycle

It is important to consider the development of the U.S. animal fiber industry to understand future growth. The synergistic relationships between people and sheep in U.S. agroecosystems are the most documented and will be the focus of this section. The "Ecosystem Cycle Model" by ecologist C.S. Holling provides an overview of people's interaction with the natural environment overtime in Figure 2. The model sheds light on the underlying processes of collective learning and problem solving (Holling, 1995; Maarleveld & Dangbegnon, 2002). The model includes four phases based on historical natural resource management: **1.** exploitation of natural resources, **2.** conservation efforts based on degradation, **3.** unavoidable release of negative effects on the fragile ecosystem, and **4.** re-organization or renewal of natural resources for continual use. This model emphasizes biological processes that include the storage of capital (carbon, nutrients) and the level of connection between all of the processes.[7]

The "Ecosystem Cycle Model" can be adapted to consider human-environmental interactions for fiber farm agroecosystems. Figure 3 represents the contextual history of the wool and sheep industry of the U.S., including the emergence, decline, and re-development of wool sheep farms:

[7] Conservation (2) and reorganization (4) have the highest "stored capital;" Conservation (2) and release (3) have the highest level of connection (Holling, 1995).

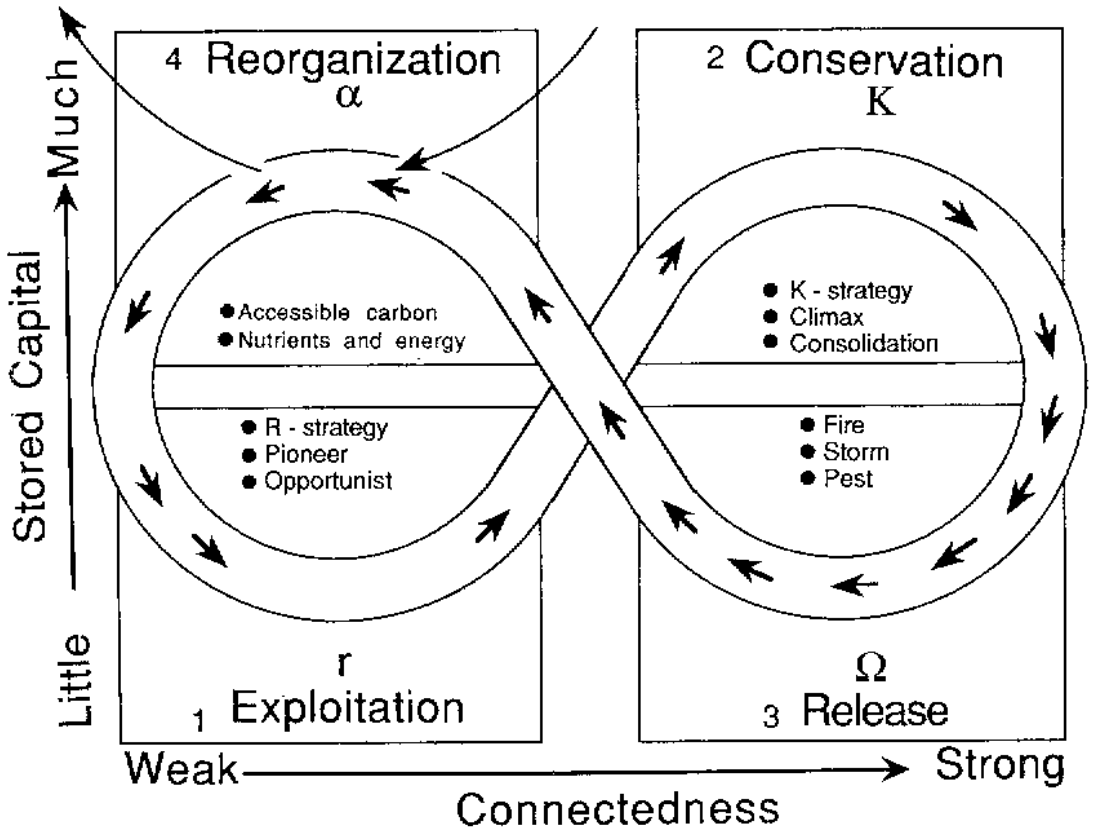


Figure 2: "Ecosystem Cycle Model." From *What barriers? What bridges?* By C.S. Holling; L. Gunderson; C. Holling; S. Light (Eds.) Copyright © 1995 Columbia University Press. Reprinted with permission of the publisher.

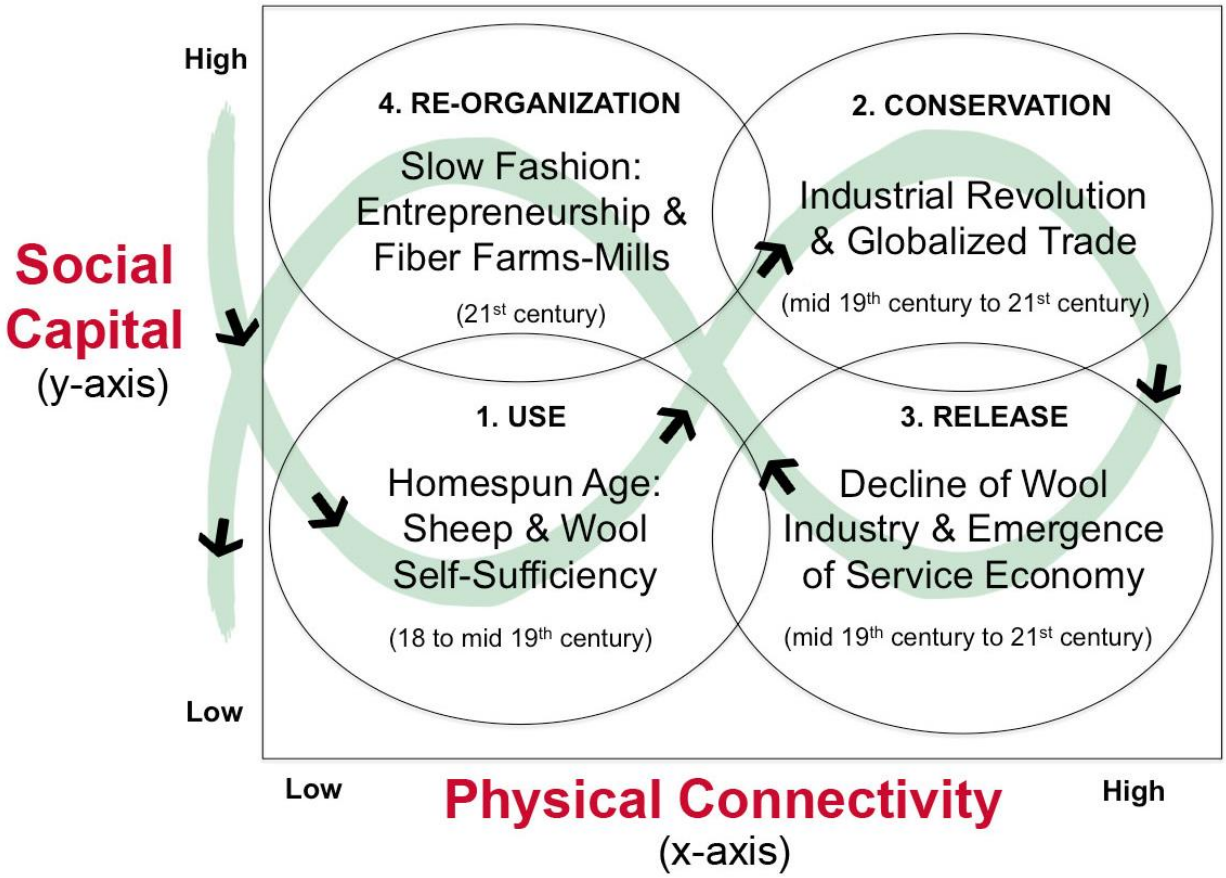


Figure 3: "U.S. Fiber Farm Cycle Model;" Adapted "Ecosystem Cycle Model" (Holling, 1995)

1. During the U.S. colonial period, sheep were a predominant part of subsistence farming and were specifically raised for their wool (Van Wagenen, 1963). The wool was processed into clothing at the household level. Raising sheep for wool required continuous care of the sheep to ensure wool was a renewable resource. In this adoption of Holling's model, the "exploitation" phase is adjusted to "use" because sheep were cared for to provide wool at the household level for clothes. Wool was a staple, regenerative natural resource that was carefully harvested rather than exploited for broad use.
2. The second phase reflects strides to indirectly "conserve" wool as a staple commodity. With the industrial revolution and extended trade networks, wool farming in the U.S. became unprofitable (Smith, 1926). As a result, wool was largely imported from other countries.

Domestic wool was "conserved" as industrialization revolutionized transportation and trade, creating a dependency on global wool imports.

3. Concurrently, phase three "release" of domestic wool farming occurred as there was a shift in raising dual purpose meat and wool sheep (Smith, 1926). This resulted in declines of U.S. wool quality and quantity as fewer farms committed to raising sheep primarily for their wool. Additionally, imports from international wool markets including Australia and New Zealand, development of synthetics like acrylic, and the eventual outsourcing of the U.S. clothing and textiles industry, led the U.S. to emerge as a service economy. A focus is placed on selling wool clothing to meet consumer demand, rather than on domestic cultivation and manufacturing of wool.
4. The fourth phase emphasizes the "reorganization" and re-development of small fiber farms and mill infrastructure over the past 15 years (Tapper & Zucker, 2008; Parry, 2013). It is based on principles of creative entrepreneurship, alternative lifestyles that focus on quality of life, and a holistic responsibility to care for animals and the landscape, while creating a culture that supports local clothing and textile economies.

All phases involved continuous learning and adaptation based on changes in the agroecosystem. The X-axis in Figure 3 represents the level of connectedness with the larger global economy. Phase one and four have low connectedness because they were and have been adapted at predominantly local scales, compared to phase two and three that have a global reach. The Y-axis represents social capital. Phase one and three have low capital; the cultivation of sheep at the household level was part of subsistence farming for the family household. As U.S. wool farms declined overtime, social capital and impact of domestic wool farms have also declined. In comparison, social capital is high during phase two and four; the industrial

revolution led to the development of national wool markets that embodied interactions among farmers and professional wool buyers. Relationships with international wool producers also emerged, and spurred the global trade of wool, as well as a global wool economy. Social capital within phase four is expected to be high as more fiber farms and mills develop as part of the larger Slow Fashion and Fibershed movement. The potential global reach of Slow Fashion and Fibersheds would make phase four shift towards a high level of connectedness. This suggests the model's fluidity based on contextual changes overtime.

Shifts in U.S. Animal Fiber Farm Clothing & Textile Economies

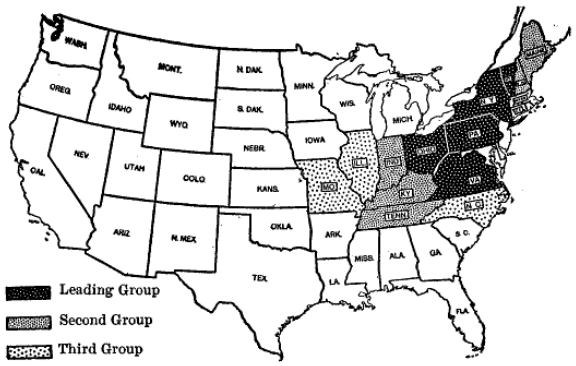
The "U.S. Fiber Farm" cycle provides a guide to consider how the domestic animal fiber industry has maintained relevance overtime although the economic worth of fibers, like wool has generally declined. The history of U.S. wool within rural and urban communities gives insight into the economic, technological, and political factors that helped nurture the growth of domestic wool in the first place. The rich heritage of U.S. wool offers motivation for the re-development of local textile economies in the 21st century as part of the Slow Fashion paradigm. This is apparent with the emerging visibility of the fiber community. The following section with provide a detailed outlook to better understand the "U.S Fiber Farm Cycle."

Homespun Age: Use Phase

During the 19th century, wool contributed to the development of self-sufficient economies in Northeastern rural communities (Van Wagenen, 1963; Smith, 1926). This was known as the "homespun age" because women spun flax and wool fibers into yarn for clothing. In 1845, New York had a record high of approximately 6.5 million sheep. Carding mills to process raw wool existed in each community, and were in walking distance (Van Wagenen, 1963). The first carding mill was developed in Jamaica Long Island New York; in 1845, there were 820 carding

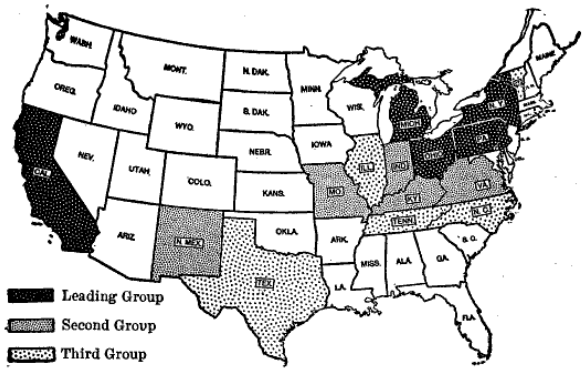
mills in NY. An estimated 7 million yards of cloth was hand-woven, and 62% of the cloth was wool. Although a majority of the cloth was wool in 1845, census data reflects a decline in wool infrastructure for domestic processing throughout 1845 and 1865 with only 59 mills available in 1865. By 1863, mills were developing in the Pacific Northwest to meet the consumer demand for wool clothing in the West (Pendleton Woolen Mills, 1971).

I. Leading Sheep Raising States in 1840



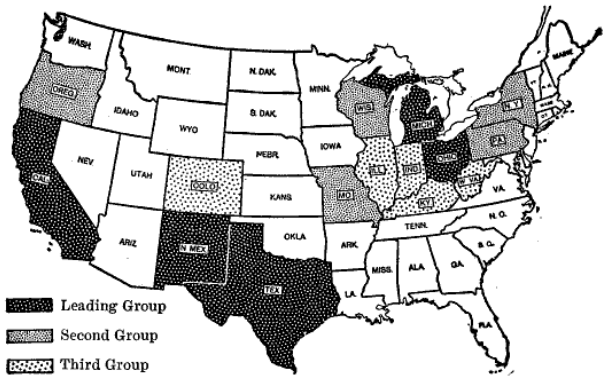
States Classified by Total Number of Sheep

II. Leading Sheep Raising States in 1860



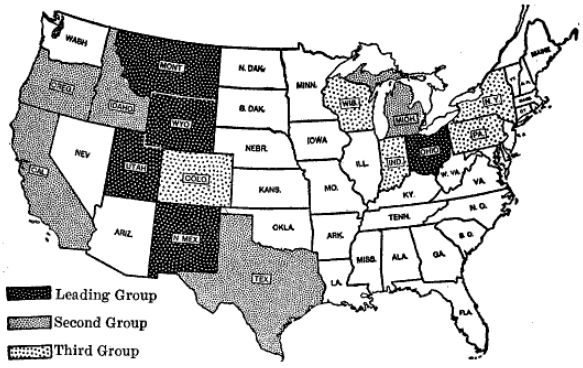
States Classified by Total Number of Sheep

III. Leading Sheep Raising States in 1880



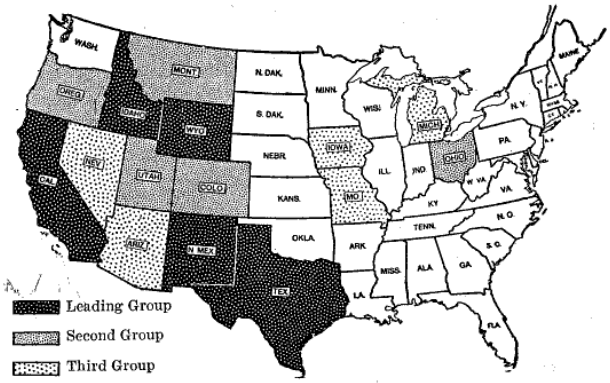
States Classified by Total Number of Sheep

IV. Leading Sheep Raising States in 1900



States Classified by Total Number of Sheep

V. Leading Sheep Raising States in 1920



States Classified by Total Number of Sheep

Figure 4: Shift of sheep and wool industry from the Northeast to the West (Smith, 1926)

Industrialization: Conservation

After the Civil War, the sheep industry shifted to U.S. "range territories" in the Far West (Smith, 1926; Figure 4). Advances in railroad transit towards the Western frontier led populations to emerge, especially with the growth of the mining industry. Initially, with wide availability of land and its low cost, it was economically viable to raise sheep primarily for their wool (Smith, 1926; Horlacher, 1927). However, the *Homestead Acts of 1909* and *1916* increased rates of settlement, restricted land use based on allocation, required financial security to pay for land, equipment for farm upkeep, and encouraged diversified agriculture for economic stability. Costs of raising sheep increased because farmers had to invest in winter feed, transit of sheep, and fencing equipment. It became unprofitable to raise sheep primarily for wool, and Merino sheep, known for their fine wool, were often crossbred with mutton sheep to be dual-purpose meat and fiber animals, with wool as a by-product (Smith, 1926).

Advances in national transportation, notably the railroad industry, steered the development of national wool trade systems (Smith, 1926). Wool buyers traveled to Western states to choose the wool clip annually. In 1924, the Boston market received approximately 83% of all U.S. wool produced (Horlacher, 1927). During the 1920s, Boston, New York, and Philadelphia were major wool markets; Chicago and Columbus housed wool-warehouses. Wool was shipped to Eastern states for processing to become a product of greater value because woolen mills persisted in the Northeast.

"Conserving" domestic wool led farmers to innovate with cooperative marketing, which provided farmers opportunities to obtain wool profits within eighteen states (Smith, 1926). The most wool marketed cooperatively was through the *Ohio Sheep & Wool Growers Association*. Cooperative marketing was important for farmers with small amounts of sheep and less wool;

this was also beneficial to farmers with limited knowledge about fiber quality and market value. Wool cooperatives developed based on wool surpluses and less demand after WWII. The cooperative wool pools were most successful in 1921, as over 22 million pounds of wool were collected. The development of cooperative marketing spurred the creation of wool grades since wool was separated by its quality. The process of grading fleeces became instrumental to marketing wool and earning revenues.

Domestic wool output and quality varied by region. In 1924, the average amount of wool in the Midwest per state was up to 3 million pounds with primarily medium quality wool from crossbred sheep (Smith, 1926). Ohio was a major hub for wool and sheep; in 1924, Ohio alone produced over 13 million pounds of wool and 60% was fine wool.[8] To compare with New England States, revenues from mutton generated two times more income than wool; and only 30% of New York wool was considered fine. The dairy industry prevailed in the Northeast, and sheep were primarily raised as part of diversified agriculture to graze pastures.

To meet U.S. consumer demand, fine wool for clothing was imported from leading wool producers including Australia, New Zealand, and Argentina (Smith, 1926). Tariffs were created to help U.S. wool producers and protect the domestic wool industry (Smith, 1926; Horlacher, 1927). However, this did little to stabilize or increase domestic wool production. The U.S. gradually became regarded as an industrial, service economy for its capabilities to sell clothing to meet high consumer demands.

Fiber Market Competition: Release

In the latter half of the 20th century, there was a dramatic shift away from domestic wool production. The peak head count of sheep was in 1942 with 56 million sheep; the record low was

[8] Ohio was a state that maintained a local wool farm industry into the 1920s because sheep were well-suited for the geographic terrain.

in 2014 with 5.2 million sheep (USDA, 2014). The reduced inventory of sheep reflects the impact of global trade, development of synthetic fibers, and impact of the *Wool Act* phase out in 1993 (Economic Research Service, 1999). Developments of synthetic fibers including nylon, polyester, and acrylic reduced the domestic demand for wool. The *National Wool Act of 1954* aimed to make the U.S. self-sufficient as a domestic producer of wool, and encouraged producers to add value to their raw fibers through marketing high quality fibers. Between 1955 and 1995, the *Wool Act* provided financial support for wool and mohair producers. However, during the 1970s and 1980s, wool was imported for clothing at high rates. By 1977, imports of raw wool were twice the amount of raw wool produced domestically. In consequence, wool processing declined from 650 million pounds in the 1940s to 148 million pounds in the 1990s. In 1997, raw wool imports were 13 times greater than domestic wool produced. Figure 5 conveys the amount of natural and synthetics fibers produced in 2007. Wool was processed at low rates compared to cotton, although high quality wool is available throughout the world.

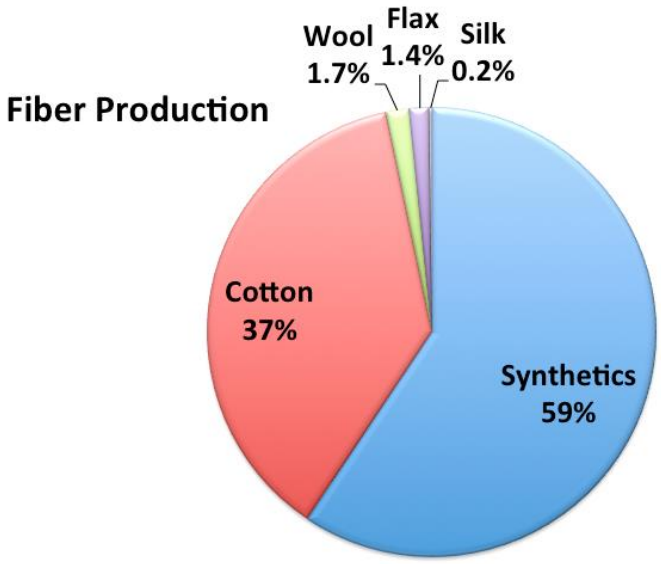


Figure 5: Global fiber production in 2007; Data from *Woolmark* 2007 in (IWTO, 2010)

Generally, the value of wool declined after the phase out of the *Wool Act of 1954* that supported domestic production of wool (Jones, 2012). The *North American Free Trade Agreement* of the 1990s reduced trade barriers and quotas on foreign imports, further propagating the decline of the domestic wool industry and reliance on cheaper, imported fibers (Petrovski, 2014). Currently, the *Farm Security and Rural Investment Act of 2002* provides marketing loan support to farmers with wool and mohair. Graded wool is worth more than ungraded, and mohair is valued at a rate 3 times greater than graded wool (Cooper, Effland & O'Donoghue, 2013). Catherine Friend (2008) explained that selling three years worth of raw wool at a wholesale wool warehouse only generated $87 in profits. Ann Merriwether from the *Nyala Alpaca Farm* in Vestal NY, explained the value in processing raw fibers into yarns. In a cost analysis of processing fibers from one alpaca, she estimated that she generated a profit of $255 to $325 in yarn sales. With 70 alpacas total on her farm, she estimated that she could generate annual revenues of roughly $17,000 to $22,000 if she processed and sold all of her alpaca fiber products. However, revenues for wool vary based on fiber quality. Approximately 90% of sheep and goat farmers earn less than 25% of their income from their sheep or goat farm business, and have another source of income (USDA, 2007).

Globalization of the Wool Textile Economy: Release

With outsourcing of the apparel manufacturing industry since the 1970s and 80s, the U.S. has strayed away from being a major producer of wool, and has become a leading importer of wool clothing in alignment with the service economy (Hodges, 2013; Wool Journal, 2013). Global wool markets depend on stability of the U.S. economy and consumer buying power. The demand of wool dictates revenues earned by farmers based on the price of wool. In March 2014, the USDA reported that wool market prices per pound ranged from $1.50 to $4 depending on the

quality of wool (American Sheep Association, 2014). Domestic wool is commonly sold to cooperative wool pools, or in small lots to fiber artisans.

Retail of wool clothing has generally declined over the past five years (Figure 6). The drop of U.S. wool clothing imports from major wool exporters—China, Vietnam and Mexico—speaks to this (Wool Journal, 2013). United States imports of synthetic apparel have increased, while imports of natural wool and cotton have declined (Figure 7). The declining consumer demand suggests a reduced market share for wool products in the U.S.; however, there are hopes for greater market share based on current efforts to re-develop and frame wool as a valuable contributor to the Slow Fashion value chain.

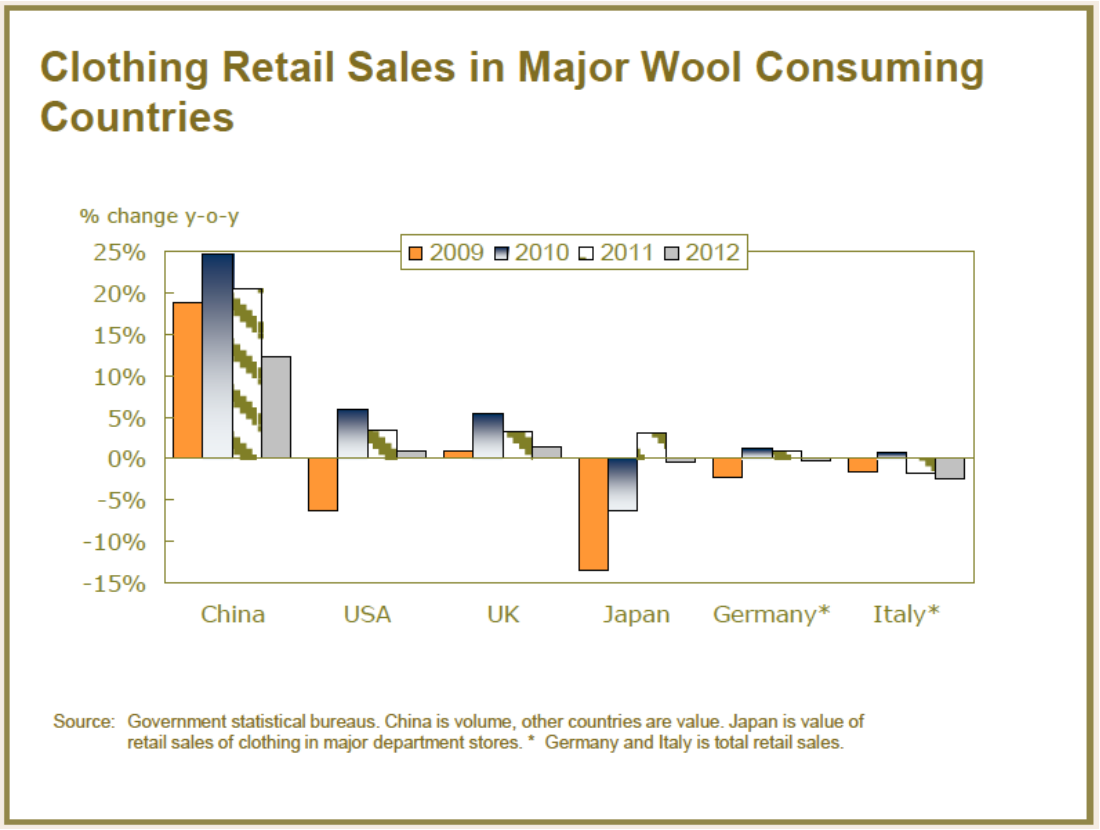


Figure 6: Global Demand for Wool Clothing Declined over past 5 years (Wool Journal, 2013). Chart by Chris Wilcox, © 2013 International Wool Textile Organization.

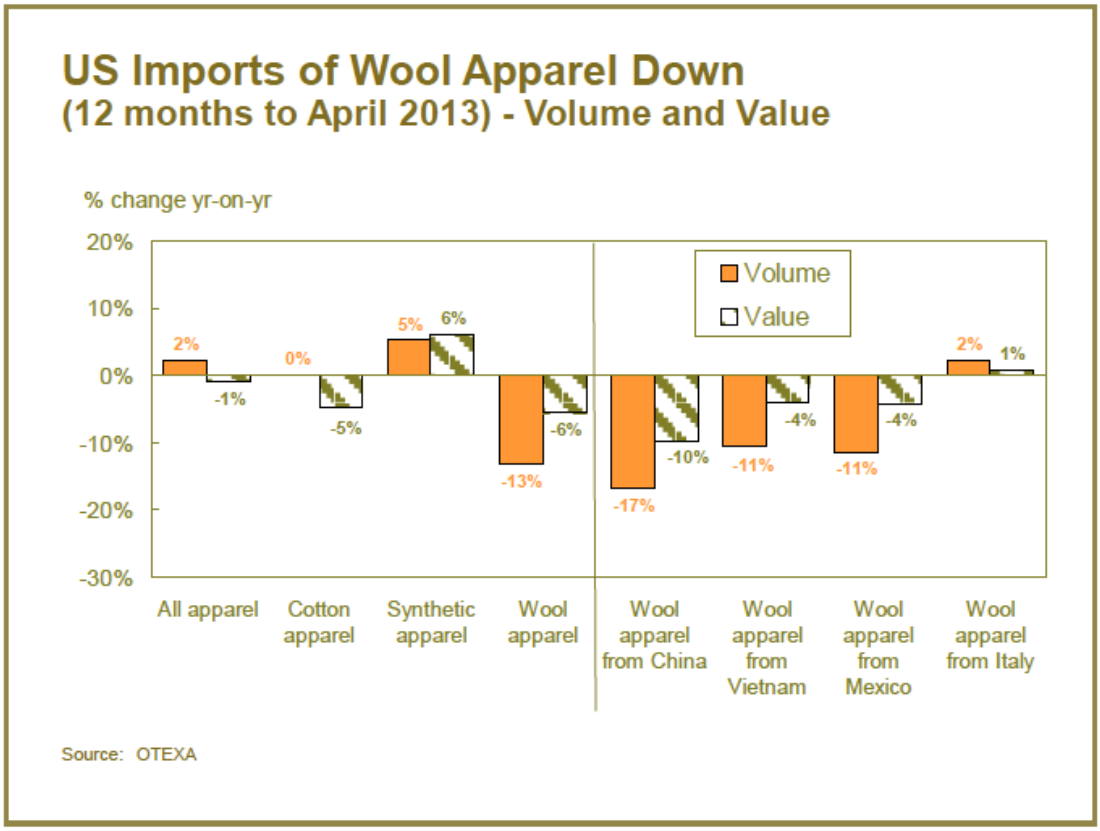


Figure 7: Conveys declining U.S. demand for wool (Wool Journal, 2013). Chart by Chris Wilcox, © 2013 International Wool Textile Organization.

Global Efforts to Re-establish Wool: Re-organization

In the past five years, there has been strong momentum in support of wool on a global scale. The *Campaign for Wool* was launched in 2010 by His Royal Royal Highness Charles the Prince of Wales, and has spurred interest among major retailers, designers, and universities (Woolmark, 2014). Special attention was drawn to wool through "Wool Weeks," special museum exhibits, and pop up wool stores featuring top student designs. In 2013, the *Campaign for Wool* generated $40.1 million in press coverage, including print, online, and broadcast media.[9] This was double the amount of press in 2012, which suggests greater media interest in this campaign.

[9] This is based on the Australian currency, which is currently $0.28 more than the US dollar.

Countries participating in the *Campaign for Wool* are primarily in the global East, including European countries, Asian countries, and Australia. The campaign focuses on promoting Merino wool for fashion industry and consumer use. Australia, China, and the UK are major producers of Merino wool and the campaign helps support their Merino wool economy for the creation of ready-to-wear clothes (IWTO, 2014). Continued participation in the annual campaign, and further global participation can help stimulate the economic stability of Merino wool farming.[10] In 2012, the campaign launched in New York City's Bryant Park with an emphasis on wool interiors and art. An estimated 25,000 people attended the event while wearing wool. This suggests support from NYC in the global effort to raise awareness about the value of wool from Merino sheep.

The *Campaign for Wool* emphasized the breed source of wool, not the geographic source. This may be a future pursuit; nonetheless raising global awareness of the value of animal fibers, especially wool that is misconceived as scratchy and itchy, provides a positive context for other regional and global natural fiber campaigns.

U.S. Fibersheds: Re-organization

The *Campaign for Wool* has provided global momentum for Merino wool and U.S. Fibersheds are providing domestic support for the use of diverse animal and plant fibers. The first Fibershed was developed in Northern California in 2011 and focuses on fiber resources and infrastructure that add value to fibers; these include processing mills, and fiber studios within a 150-mile radius (Fibershed, 2013). The first Fibershed in Mendocino County was developed in response to millions of pounds of U.S. wool generated as waste because of limited infrastructure, and low economic incentives to process raw fleeces into yarns or textiles of higher value.

[10] India, the Islamic Republic of Iran, South Africa, Argentina, and Uruguay are also major producers of Merino wool (IWTO, 2014).

California sheep farmers have not earned optimal revenues because only about 0.3% of the 3 million pounds of California wool are processed into products of higher value like clothing or textiles (Bieg, Burgess, Kahn et al., 2014).[11] Existing California mills are only capable of processing up to 10,000 pounds of wool per year. The remaining wool is either used as compost, wasted in a landfill, or sold at very low prices as "reject wool" through local wool pools.

Bieg, Burgess, Kahn et al. (2014) found that a majority of California wool can be worn comfortably next to the skin, which provides motivation to develop more mill infrastructure. The study team conducted a 6-month *Fibershed Wool Inventory* survey with fiber farmers, analyzed wool from the 2012 Roswell Wool auction, and collected fiber samples from four wool shearers. Approximately 1 million pounds of wool was analyzed and 71% was considered fine enough to wear next to the skin with a micron count of less than 24.[12] Rees (2010) suggests that wool finer than 24 microns can compete with cotton and polyester (in Jackson, 2011). The fine wool was primarily in hot and dry regions of central California as shown in Figure 8. The fine wool in California is considered an "untapped commodity" that can offer economic development opportunities for fiber farmers if there is collaboration with fiber artisans and fashion industry brands.

[11] According to the USDA California sheep inventory, 71% of sheep farmers raise 1 to 24 sheep.

[12] 1.408 million pounds of wool was inventoried, which is 44.8% of all California wool (Biet et al., 2014)

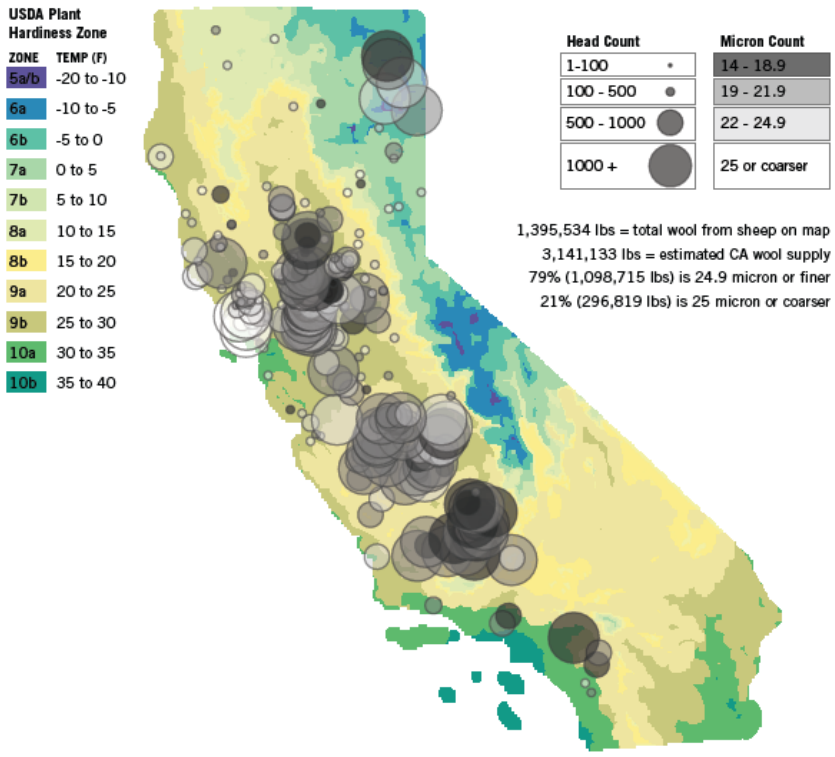


Figure 8: California Amount of Sheep & Wool Quality Map (USDA Agricultural Census, 2007; Roswell Wool Auction Data, 2012; Fibershed Wool Survey, 2013; Climate Zone Map, PRISM Climate Group Oregon State University, 2013; in Bieg, Burgess, Kahn et al., 2014)

Micro-level Solution

To develop a stable, self-reliant local clothing and textile economy, the Northern California Fibershed has promoted fiber farm, mill, and artisan partnerships. Fibershed artisans create one-of-a-kind clothing and textiles that highlight the beauty of the regional fiber resources with their expert skill set. Their work takes time and aligns with Slow Fashion principles of considering quality, diversity, and creating long physical, social, and cultural lifespans for clothing.

Monica Paz Soldan created the first "Fibershed" garment, which reflects the symbiotic relationship between artisans and fiber farmers (personal communication, November 21, 2013). The knitted shirt in Figure 9 is made of organic cotton boucle yarns from Sally Fox's Farm in Brooks CA, which is in the Mendocino County Fibershed. The tan cotton boll and is an example

of cotton that may have been used for the t-shirt. To reflect the diversity of natural colorants in the 150-mile radius, Monica also implemented her own hand-dyed indigo yarns on the lower half of the shirt. This Fibershed garment embodies connectivity to place and artisan-fiber farm partnerships.

Figure 9: Rebecca Burgess models first Fibershed t-shirt of organic, color-grown cotton, designed and knit by Monica Paz Soldan. Photo by Paige Green.

Fiber artisans range in their experience and have also stimulated Fibershed participation among their own fiber networks. Marlie De Swart has extensive experience creating clothing from local resources, has taught fiber arts for over 20 years, and also manages a fiber artist cooperative *Black Mountain Artisans* to support fellow artisans (personal communication, November 16, 2013). Figure 10 is an example of a one-of-a-kind, hand-spun knitted vest by Marlie. She used two different types of wool from local farms. The yarn for the body is from Corriedale-Finn sheep from *Windrush Farm* in Petulma CA. The decorative yarns in the borders are Wensleydale curls from *Starbuck Farm* in Valley Ford CA. The novelty necklace is hand-spun from the natural brown colors of alpaca fibers. The vest and necklace exemplify distinct textural and creative possibilities with natural animal fibers.

Figure 10: Wool vest and Alpaca Necklace by Marlie De Swart, 2013

Under the Slow Fashion paradigm, the cost of clothing is higher than typical clothes produced in the Fast Fashion system (Joy et al., 2012). Fibershed artisan Courtney Siperstein-Cook explained:

> …the biggest thing with local is adjusting your perception of the value of something because we're used to materials and resources that are really destructive and lower priced…they're taking advantage of people, and resources, and land in the process of getting the low price…if you're being responsible, clothes aren't cheap (personal communication, November 15, 2013).

Rebecca Burgess discussed that hands-on spinning, knitting, and dyeing workshops help people appreciate the process of creating a garment (personal communication, November 25, 2013). People understand the true worth of a garment and are willing to pay the price. They also gain the skill set to produce their own clothing. This aligns with the Slow Fashion paradigm that encourages intimate reflection of all resources and labor involved in the value chain of clothing. Although the price of Fibershed clothing is higher, it is presumed that consumers would alter consumption habits and buy less. The price disparity between Fibershed clothes and clothing in the mass market can also be seen when clothes made of synthetics and natural fibers are

compared. Denend and Shiv (2011) explain that a synthetic base layer shirt costs $19 to $25, compared to a shirt made of New Zealand Merino that could be $60. The cost of synthetics is lower than natural fibers, which is important to note since Fibershed focuses on regional, natural fibers that are expected to be higher priced based on the value of cultivating the fibers, land use, and local labor.

Fibershed Consumers

The online Fibershed Marketplace connects fiber farmers, artisans, and consumers. Listings and biographical information of artisans and fiber farmers allow the public to learn more about Fibershed and the fiber community. Burgess explained:

> Regionally produced fibers carry site-specific textures and luster that will illuminate the beauty of your homeland in a way that no other material can (2011, p. 25).

The Marketplace moves beyond the output of clothing as a commodity. It aims to stir interest in the Fibershed value chain that involves people, their labor, fiber animals, and land use.

With the Fibershed Marketplace, consumers are given agency to support local clothing and textile economies. Monica discussed having a small following of loyal customers who seek her products because they are one-of-a-kind and "pure." Over the last five years, she's noticed that more people are aware of the environmental and socially responsible aspects of her business. Marlie stated that her customers express love and joy with her products. She commented, "They love it…because if you buy a sweater, it lasts a lifetime. Truly a lifetime." This suggests longevity to Fibershed products and an intrinsic attachment people have to them based on their relationship with the artisans and knowledge of the value chain.

Figure 11: Fiber artisan and potential customer at the Fibershed Symposium, 2013. Photo Credit David Arellanes.

Fiber artisans have several opportunities to interact with customers and communicate information about their work. During the Fibershed symposiums, academia, farmers, artisans, mill owners, and the general public engage and connect with each other. Figure 11 conveys a warm interaction between a fiber artisan and potential customer. The Fibershed Fashion Gala in 2013 also stimulated collaboration among artisans and farmers. A key attribute for each Fibershed look was that it was created with the synergistic creativity of at least two fiber artisans. The looks were catered for the San Francisco market, people interested in supporting authentic work of artisan designers (C. Siperstein, personal communication).

The concept of "Fibershed" not only provides opportunities for physical connectivity among farmers, mill owners, and artisans; it also acts as a sustainable brand that is slowly gaining recognition. Figures 9 through 11 are "Fibershed Certified" products, with fibers, dyes, and labor harvested within the Mendocino Fibershed. The certification represents support for the regional clothing and textiles economy as part of the Slow Fashion paradigm that considers people, animals, and land use (R. Burgess, personal communication).

Macro-level Solution

Overall, California mills are fragmented, rather than vertically integrated in one location where raw fibers can be fully processed into finished clothing and textiles. Three Northern California mills are the *Yolo Woolen Mill*, *Morro Fleece Works*, and *Valley Ford Woolen Mill*. All mills add value to raw fleeces for local farmers, but none offer vertically integrated services with clothing or textiles as the final product. Knitting mills, like *Texollini* in Southern California, offer cut and sew services for knitwear. To stimulate greater availability of Fibershed clothing and reduce prices, a vertically integrated mill was proposed by the Northern California Fibershed research team.[13]

The proposed vertically integrated California Wool Mill aimed to maximize efficiency in a closed loop apparel value chain (Bieg, Burgess, Kahn et al., 2014). Figure 12 shows the first part of the supply chain, which aligns with a traditional wool processing supply chain. The proposed California Mill in Figure 13 aimed to create a 21st century sustainable, closed loop value chain that coincides with the *"*Soil to Soil*"* Fibershed model. It suggests that all processing steps should be done in a single location to avoid fragmentation in the supply chain, which is currently the status in California. The proposed California Mill reflects holistic thinking that aligns with Slow Fashion; it also embodies environmental responsibility with solar harvesting, wastewater recycling, and compost management facilities.

[13] *Fibershed Feasibility Study for a California Wool Mill* research team: Amber Bieg, Rebecca Burgess, Dustin Kahn, Erin Axlerod, Jenny Kassan, Marcia DeLonge, and Lydia Wendt.

Figure 12: Typical Wool Supply Chain. From *Fibershed Feasibility Study for a California Wool Mill* By A. Bieg; R. Burgess; D. Kahn et al., Copyright © 2014 Fibershed. Reprinted with permission of the publisher.

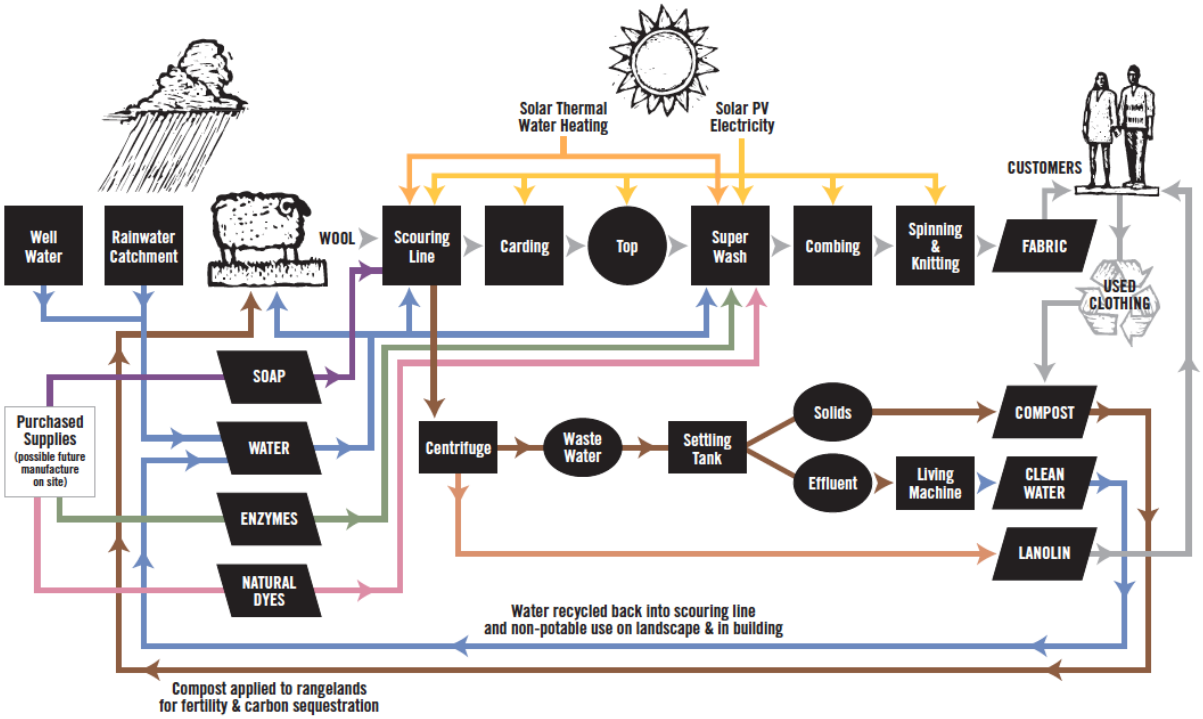


Figure 13: Proposed closed loop Wool Mill. Spot illustrations by Ron and Joe/ Shuttershock. From *Fibershed Feasibility Study for a California Wool Mill* By A. Bieg; R. Burgess; D. Kahn et al., Copyright © 2014 Fibershed. Reprinted with permission of the publisher.

In discussions with 12 potential fashion industry partners, Bieg, Burgess, Kahn et al. (2014) found that small brands were interested, but were concerned about local wool fabrics priced at $11 to $30 per yard alone, not including retail mark up for the final clothing. The highest difference in cost was based on higher wages for U.S. labor, compared to low wages provided in developing countries. Looking forward, it was estimated that the California wool market could be up to $14.7 billion based on annual sales of the 12 fashion brands. Fiber farm-

fashion industry partnerships can provide great economic stability for the domestic clothing and textiles industry.

In sum, the total cost to establish the California Wool Mill was estimated to be $26 million, which is not currently feasible. However, the Northern California Fibershed continuously supports the regional clothing and textile economy at the micro-level. In the future they plan to test the consumer market and performance qualities of California wool using East Coast mill infrastructure. They also hope to create a "proof of concept business" by "staging the mill" with the use of micro-enterprise California mills. Ideally, they hope to see a shift in consumer and fashion industry demand for locally grown and processed wool, as well as a consumer willingness to pay 30 to 40% more for clothing.

The next chapter highlights the existing fiber farm and mill physical infrastructure, and social infrastructure that support the fiber community in New York State. The availability of this infrastructure suggests prospects for the development of a New York Fibershed that can support a local clothing and textiles culture and economy.

CHAPTER 5

NEW YORK FIBERSHED

Physical Infrastructure

New York State is unique because New York City is the leading fashion capital of the world (Thomas, 2014; Rantisi, 2006). Fashion entrepreneurs in NYC are also striving to re-vitalize a local apparel industry. *Maker's Row* (2012), an online start up, provides a database about domestic textile and apparel manufacturers. *Manufacture NY* (2013) offers designers a space to create clothing in a NYC common venue. Major apparel companies including *Eileen Fisher* and *Rag & Bone* manufacture "Made in America" clothing lines. Smaller NY brands like *Farm2Fashion*, and *Simply Natural Clothing* include animal fibers in their clothing lines. Drawing attention to the fiber, clothing, and textile resources beyond NYC can expand our understanding of the contributions of rural and "in between" spaces throughout New York State. Although an official "fibershed" has not been developed in New York, the fiber farm and mill infrastructure exists to support a local clothing and textiles economy as seen in Figure 14.

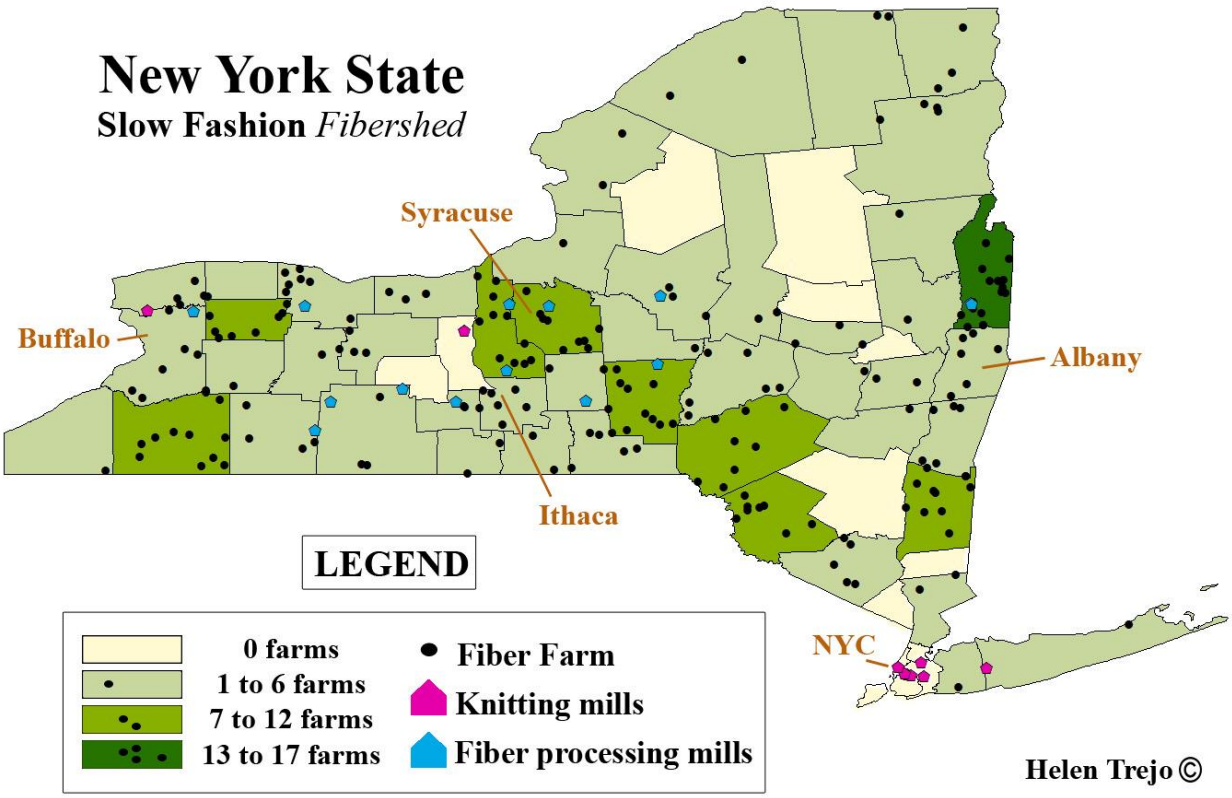


Figure 14: Visualization of the NYS Fibershed

As Figure 14 illustrates, 210 fiber farms exist throughout the state with high concentrations throughout central, western, eastern, and southern NYS (Appendix C). There are approximately 14 mills to process fibers into yarn (Appendix D); they exists primarily in central NY, while nine knitting factories are largely centered in NYC (Appendix E). Fiber processing and knitting infrastructure in NY is fragmented, similar to the physical infrastructure in California with fiber mills in Northern California and knitting factories in Southern California near Los Angeles, another fashion city.

Social Infrastructure

New York fiber farmers, mill owners, and artisans have developed extensive social infrastructure to support the fiber community. Current social infrastructure includes annual fiber festivals and fiber tours based on NY fiber farm and mill physical infrastructure (Post, 2014a).

The following section highlights the development of New York social infrastructure based on economic development needs among sheep and wool farmers.

As mentioned in Chapter 4, as the U.S. wool industry shifted to the West during the late 19th and early 20th centuries, raising sheep for wool was a declining aspect of New York's agricultural economy.[14] However, sheep farmers sought to improve revenues earned. Cooperatives provided farmers with opportunities to expand their market access and revenues. Generally, farmer cooperatives developed further away from urban centers because farmers far from urban centers had less bargaining power than farmers close to urban communities (Booth, 1928). Cooperatives were important because Eastern wool growers often had to compete for market access with finer quality Western U.S. wool, and international imports (Smith, 1926).

Booth (1928) alludes to an early account of cooperative wool marketing in 1915, when sheep farmers from Otsego County established an association and sold wool at a public auction. Otsego County's model influenced the creation of similar wool associations throughout NY. By 1918, there were 18 wool associations in NY, and approximately 500 thousand pounds of wool were sold collectively. This involved collective engagement among sheep farmers and wool buyers who sorted the wool by quality. In 1919, the *New York State Sheep Growers' Cooperative Association* was established in Syracuse, and by 1921 there were 23 wool marketing associations (Booth, 1928). The associations collectively had a membership of 1,075 farmers by 1924.[15]

The development of cooperative marketing contributed to the development of the wool grading system that determines profits based on wool fineness. Booth discussed:

[14] In New England states—New York, New Jersey, Pennsylvania, Delaware, and Maryland—about 66% of 1924 income earned came from mutton and lamb sales to the large New York City market; about 33% of income was from wool (Smith, 1926).

[15] Three members were not farmers.

> Wool is no longer "just wool." The careful producer need no longer be penalized by a system which for years had treated all alike, regardless of the quality of the product offered (p. 36).

This suggests that sheep farmers were able to make more revenues based on their attentiveness to wool quality and effective breeding of sheep. Finer wool could help a farmer earn more than coarser wool for the production of clothing and textiles.

There continues to be a strong presence of NY sheep and wool cooperatives, and an emergence of associations to support the cultivation of diverse fiber animals, as seen in Figure 15. The availability of these cooperative associations highlights the social infrastructure for 21st century NY fiber farmers. The cooperatives have also spurred NY fiber festivals as seen in Figure 16. Festivals provide an initial meeting point for emerging fiber farmers who want to learn about fiber animals from experienced farmers, shearers, and mill owners (Parry, 2013). Fiber farmers, mill owners, and artisans have opportunities to engage and support each other socially and economically with peer-to-peer workshops, marketing workshops, and sharing knowledge about fiber animals. Social learning, entrepreneurial business planning, marketing, and management are all inherent aspects of artisan participation in festivals (Mosely, 2012).

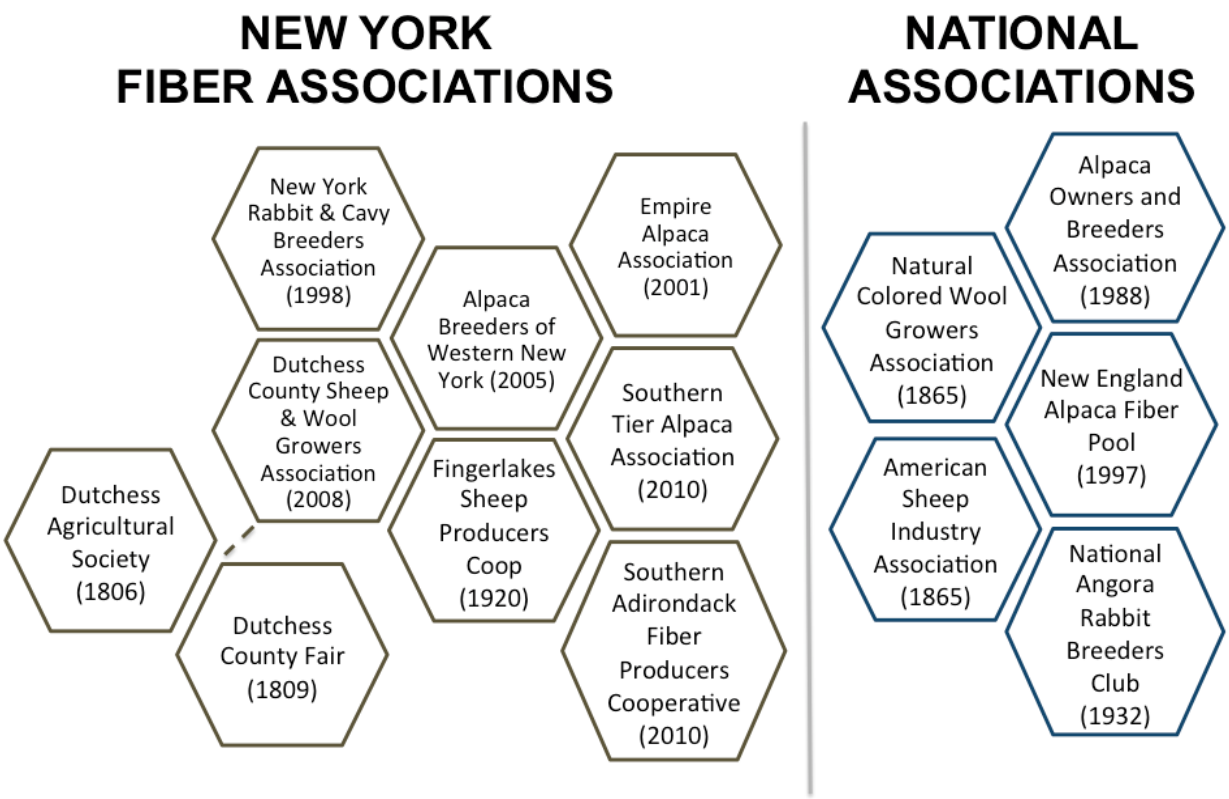


Figure 15: Sample of New York & national fiber associations and cooperatives for farmers

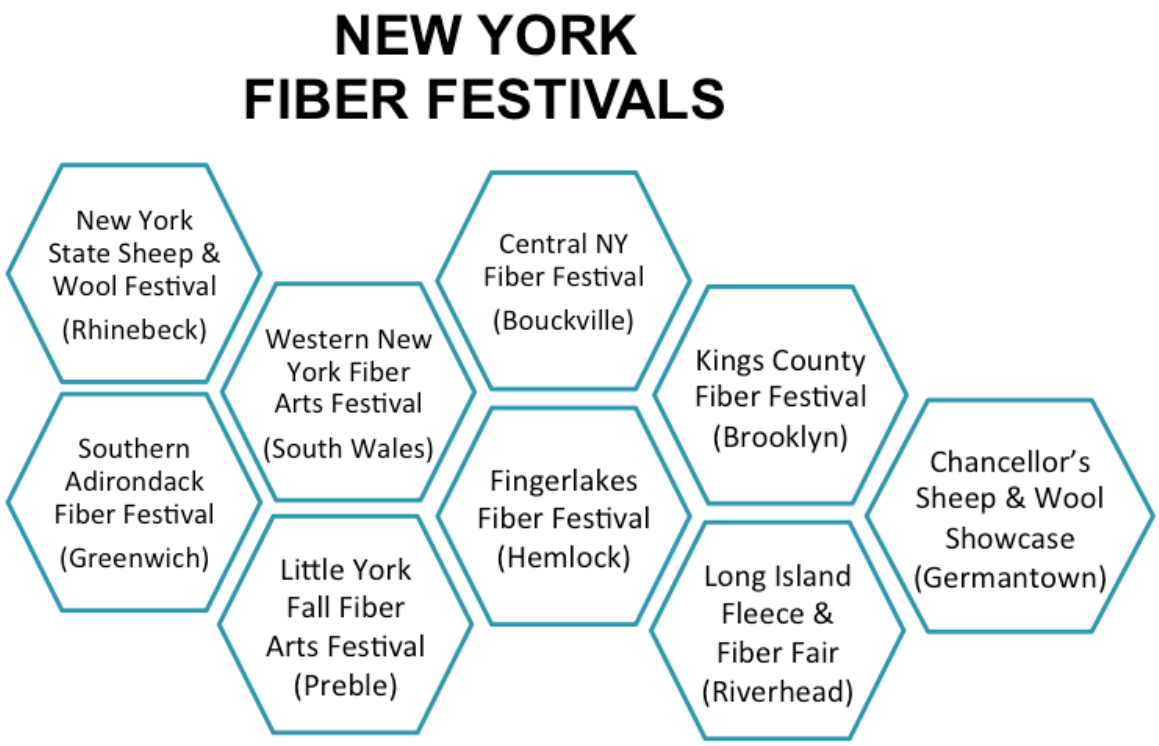


Figure 16: NY Fiber Festivals

It is important to note the voluntary component of these cooperatives and festivals. The "Rhinebeck" festival is one of the most popular in New York. Members of the New York State Sheep & Wool Festival "Rhinebeck" *Ravelry* group expressed gratitude and appreciation to festival volunteers who were in the process of organizing the festival with seven months lead-time. Over 90 interactive workshops are available for public engagement and understanding of the interlinks between farmers, artisans, fibers, and land. Artisan workshops include: hand-carding, spinning, felting, knitting, and using natural dyes. An artisan teaching seven classes expressed her commitment to sourcing regional materials with the statement that:

> [she] is very conscious of where her fiber comes from, sourcing her wool from local and friendly farms, directly from wonderful shepherds with happy animals.

Workshops also focus on techniques for purchasing fleeces, and expanding knowledge about endangered sheep, which supports collective knowledge and resiliency. The holistic relationships

among people, animals, and land embodies Slow Fashion principles, especially as they highlight the value of processing raw fibers into clothing and textiles with sustained community effort.

Additionally, the annual *Washington County Fiber Tour* in New York promotes holistic community engagement. Figure 17 shows that the highest concentration of fiber farms—17—are in Washington County; this particular county also houses the *Southern Adirondack Fiber Producers Cooperative* and the *Southern Adirondack Fiber Festival*. Historically, the county housed several cotton and wool mills that spurred its economic prosperity, and supports the persistent clothing and textiles community along the Hudson River (Battenkill, 2013). Fiber farms and mills on the fiber tour welcome visits from the public on the last weekend of April (Figure 17). The public have opportunities to develop their own expertise as they observe the interplay between fiber animals and farmers on the landscape. Artisanal workshops also offer the public opportunities to develop creative agency with the use of local fibers.

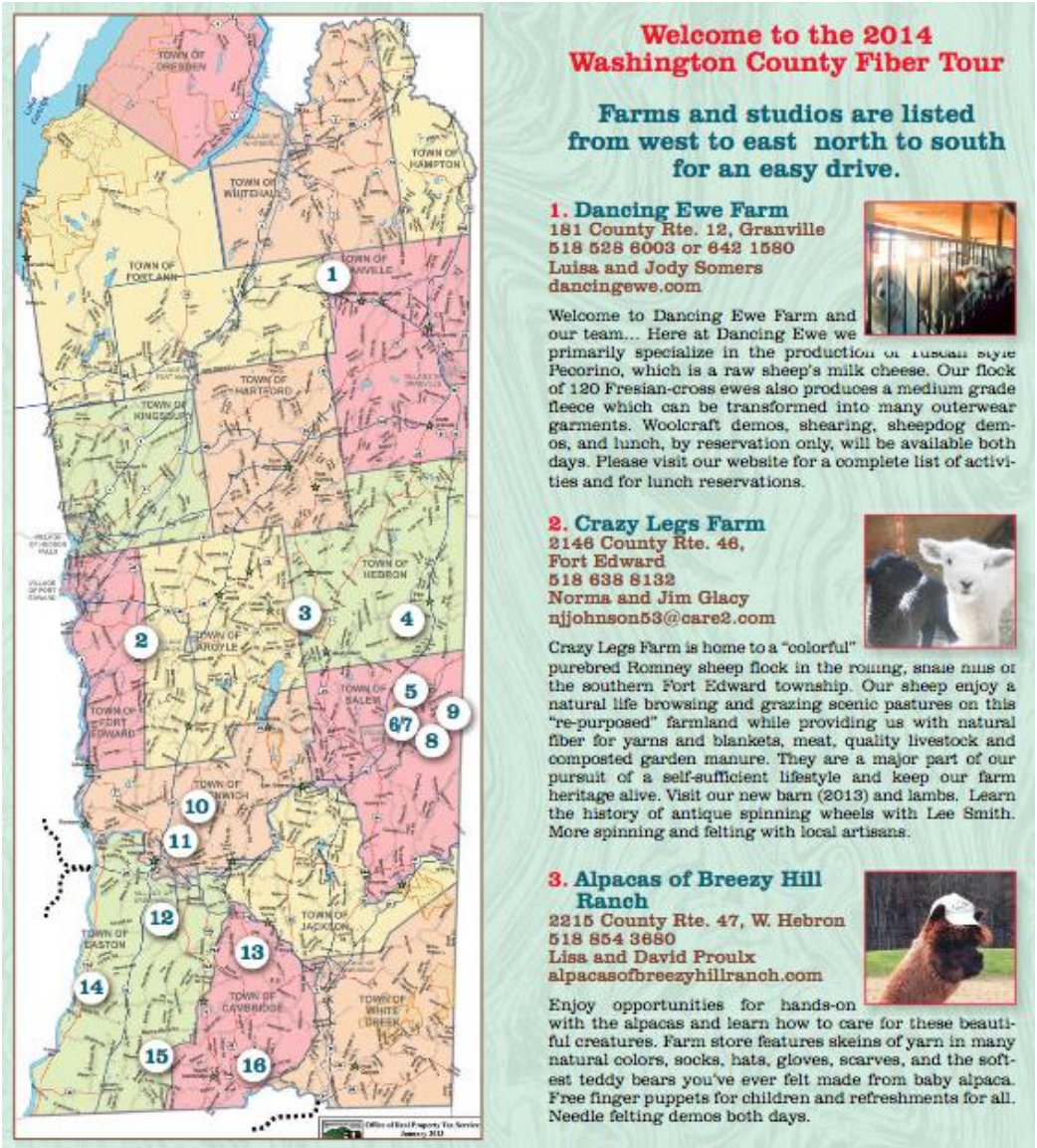


Figure 17: 22nd Annual Washington County Fiber tour brochure, April 2014. Image Courtesy Faith Perkins.

Additionally, NY fiber farmers host open farm days where visitors can further observe, interact, and develop their own expertise. In May, Lisa Ferguson from the *Laughing Goat Fiber Farm* in Ithaca hosted an open farm day to provide the public opportunities to learn about angora and cashmere goats, alpacas, and "meet this year's kids as they test their legs on the baby goat playground!" Figure 18 is a photograph of one-month old angora kids. Visitors could observe the goats bonding with each other, grazing, resting, and playing; they could also form their own

bonds by touching and carrying them to experience their calm temperament first-hand. The awe and appreciation of both children and adults suggested the positive social and psychological value of this event.

Figure 18: Twin angora kids relaxing on playground in the *Laughing Goat Fiber Farm*

New York fiber farmers have a strong sense of community and autonomy. They not only host open farm days to engage with the public, they also extend their knowledge to fellow farmers at regional educational events. Ferguson from the *Laughing Goat Fiber Farm* participated in an "Increasing Farm Diversity with Small Ruminants" panel at the *Northeast Organic Farming Association* in January 2014. She explained management of the animals, fiber processing, and marketing (Post, 2014b). Additionally, in 2013 Ann Merriwether from the *Nyala Alpaca Farm* in Vestal New York, presented a "Marketing All Grades" workshop to express the different marketing opportunities for fiber farmers through *Cornell Cooperative Extension of Broome County*.

CHAPTER 6

RESEARCH STUDY

Preliminary Research

Several preliminary studies, including an online ethnographic study and farm visits were helpful to develop an understanding of U.S. fiber farms during the time of the study. These studies also helped narrow down the scope of the research, and shape the fiber farm and consumer survey methodology that will be discussed in the latter part of this chapter. These studies confirmed the literature review and emphasized the value the fiber animals in the Slow Fashion value chain.

Netnography

To explore the inter-relationships among fiber farmers and their animals, as well as the dynamic interaction with the U.S. public, an online analysis of fiber farm Facebook pages was conducted between February and April 2013**.** In the ethnographic online study, four fiber farms in New York, Illinois, Virginia, and Texas were analyzed for a five-week period. The four farm Facebook pages ranged from 250 to 2,000 members with consistent activity.

The preliminary study highlighted how fiber farmers are valuable assets to the clothing and textiles value chain because they are experts in the "raw materials," which are the animal fibers. Through ethnographic online research, this study suggested that fiber farmers add social value to their fiber animals, and fibers as an extension. Farmers reflected on names, personality, and physical appearance to highlight the fiber animal's spirit. Fiber farmers individualized their animals with photographs and short anecdotes; they posted open farm day opportunities for public visits, and engaged in regular dialogue with the general public to continuously stimulate interest and enthusiasm.

Methods

Content analysis was used to analyze the data in-depth using Atlas.ti software. Comments were coded into seven categories based on key words, phrases, and the context. Table 1 presents the code list from highest to lowest frequency, and representative statements. Some comments were categorized under more than one code. An example is the statement "love it when [they] have a 'farm-buddy'…you are right… alpacas make bff…just like us! ☺," that was coded as *affection* and *animal personality*. The term "love" led researchers to assign the code *affection* and the code *animal personality* was assigned based on the phrases "farm-buddy" and "alpacas make bff… just like us" because it implies alpaca's desire to develop relationships with others, anthropomorphic characteristics that people have. Comments with the words "precious" and "sweet" were excluded if the user did not make a specific reference to the fiber animal's appearance, personality, or if it was ambiguous whether it was a term of affection. The average inter-rater reliability KAPPA statistic was 0.98, which conveys a strong consistency in coding comments. All KAPPA values were significant based on the 0.005 value.

Table 1: Codes and representative statements from Fiber Farm Facebook pages

Codes	Examples
Physical appearance (424)	"Absolutely gorgeous!" "How precious. He doesn't look real."
Affection (162)	"I am in love… with both him and his purple coat! <3" "I need insulin… this is just too sweet!"
Births (157)	"We should have lambs in less than 1 month!" "Four babies born today! A set of triples born to our red goat, Cherry, and a single born to our old white nanny, Mrs. Bubbles." "Here HE is!!! A beautiful, healthy little boy! 11.2lbs and a gorgeous light fawn color!!!"
Animal Personality (122)	"He was born with a lively demeanor, too. Less than a day old and he's already hopping and jumping!" "She is such a beautiful girl… humans can learn a lot from her tireless spirit and willingness to go on…I do love that girl… she embodies all the elements of a hero."
Visit Farm (57)	"I can't wait to come back to your farm and see all the little ones bouncing around. So cute to watch." "Sure wish I lived closer would be there. But since I am from Indiana, not possible right now."
Sympathy (41)	"Poor baby, I hope she recovers quickly." "Prayers for the sweetling."
Animal Illness (22)	"Our poor little wounded Rose. She's very mellow tonight." "Scary here. Sheep down. One of my sweet Missouri girls, Cinderella. Found her laying on her side on the b[a]rn…looks like she can't control her back legs…"

Findings

Descriptions of the fiber animal's physical characteristics were the most common theme in the analysis of the Facebook posts and statements. During the five-week time frame, three fiber animals from different farms were born with multi-colored coats including a kid (baby goat), lamb (baby sheep), and cria (Figure 19). Farmers commented on the parent's colors to help explain unique color markings on the animal's coats. Users made 219 comments conveying curiosity and affection towards the multi-colored baby fiber animals, which adds to their social

value. Referencing a kid from Texas, the farmer indicated: "…You guys take a good look at little Koda. I'd be willing to bet money that he won't stay black and white for long." Users commented, "bet he grays out!" and "he could end up ANY color. Boysenberry was black and white last year and ended up cream colored with a brown face." This implies that the fiber animal's coat color can change overtime and be completely different when they become adults. These examples show how the "[n]atural colour [of animal fibers] connects us more closely to people, their local economies and the land" (Fletcher & Grose, 2012, p. 71).

Figure 19: Multicolored lamb from Illinois farm, 2013. Photo Courtesy Terri Carlson.

Fiber farmers express the social-physical temporal significance of fiber animals and their fibers. Multi-colored features, as well as fiber quality based on age are both examples. Fiber quality is generally highest when fiber animals are young (Parry, 2013). A California fiber artisan explained that fleeces are only a true black for a brief time when a lamb is young; it eventually becomes lighter with exposure to the sun and older age (personal communication, 2013).

The preliminary study suggested ethical grounding for extended use of clothes made of animal fibers. The visibility and brief anecdotes provided by fiber farmers add sentimental appeal to their work and clothing made of animal fibers. The study highlighted the significance of fiber farmers and the need to regard them with empathy and appreciation as valuable contributors to their communities and the clothing and textiles value chain. The intrinsic links between people, fiber animals, and land use can steer the development of a Slow Fashion "moral framework" under Manzini's "Consumption to Care" philosophy (Rudy, 2011, p. 202).

On Farm Visits

To further explore the dynamics between fiber farmers, their animals, and the local clothing and textile industry, preliminary research involved visiting several farms with sheep, goats, and alpacas. This included the *Laughing Goat Fiber Farm* in Ithaca NY, the *Cornell Sheep Farm* in Dryden NY, and the *Alpaca Cass Farm* in Davis CA. Fiber farmers in Ithaca and Davis narrated the story of their farm and animals. They provided first-hand understanding of their work and the sentimental value they place on their fiber animals. Attending the *Cornell Sheep Farm* during the "Shearing School Weekend" in 2013 provided great insight into the labor intensity of shearing sheep for their wool as the initial step to process fibers. World renowned sheep shearer, Doug Rathke, provided training and demonstrations to approximately 15 sheep farmers to help them become self-reliant in shearing their own sheep. These preliminary studies gave great insight and helped shape the NY Fiber Farm survey.

Part 1: NY Fiber Farm Survey

The purpose of the survey was to learn more about existing New York farm-mill infrastructure, and to explore marketing strategies implemented by fiber farmers to sell their fiber products. The New York Fiber Farm Survey also informed the development of marketing

conditions for the Consumer Survey in the second half of the study. The consumer survey would provide insight about the potential consumer market and their interest in locally produced knitwear.

Methodology

Survey

To create the fiber farm survey, the *California Fibershed Wool Inventory* online survey was referenced, and scholars with expertise in sheep farming, marketing, and apparel supply chains provided feedback. The fiber farm survey consisted of open and closed ended questions to provide a forum for fiber farmers to express their thoughts and obtain quantitative data. Open-ended responses were analyzed and coded using Atlas.ti software. A pilot fiber farm survey was distributed to farmers throughout the U.S. in June 2013. Modifications were made to the survey based on feedback from 16 farmers, and the final NY survey was distributed between July and August 2013. One-hundred forty-four NY fiber farms were contacted to complete the survey, and 67 responses were fully complete with a response rate of 46.5%. Some farms had both fiber farms and on-site mill infrastructure, which enriched findings. On-farm site visits to three fiber farms and mills further informed survey findings with semi-structured interviews (Appendices G & H).

Sample

The following describes the study sample (Table 2). Approximately 70% of respondents were female. This reflects the emerging trend of female-operated farms in the United States, but women also tend to respond to surveys more than men (USDA 2007). A majority of respondents reported working on the farm full time (62.7%), and less worked part-time (37.2%). Respondents' farm work experience ranged from 1 to 5 years, and the labor force was mainly

family members. Additional people that helped process the fibers included professional shearers and mill employees. On average, income earned from fiber farms was less than $10,000.

Table 2: Income distribution reported by 57 NY fiber farmers

Income earned from Fiber Farm	Frequency (N= 57)	Percent
Less than $10,000	37	63.2%
$10,000-$24,999	11	19.3%
$25,000-$49,000	5	8.8%
$50,000-$74,999	2	3.5%
$75,000 and over	2	5.3%

Findings

Responses from 67 fiber farmers revealed that there are a wide range of animal fibers available in New York. Fibers include wool, alpaca, mohair, cashmere, angora, and llama fibers. The amount of fiber animals fluctuate throughout the year based on sales of the animals, and births of new animals.[16] Farmers sell yarn (76%), roving (73%), clothing and/ or accessories (64%), household textiles (50%), and other products including raw fleece.

Marketing Strategies

Approximately 76% of 64 farmers communicate information about their fiber animals to sell fiber products. Marketing platforms include direct conversations with customers (68.7%), conveying information through the Internet (55.2%), and informative labels on products (53.7%). The category "direct conversations" included interactions with customers at farm tours and fiber festivals. Marketing platforms on the Internet included farm websites, blogs, Etsy.com pages, Facebook, and Twitter pages.

Farmers add value to their fiber products by highlighting the significance of their animals as a marketing strategy. Forty-four fiber farmers provided detailed open-ended responses about the specific information they communicate about their animals to market fibers. Codes to analyze

[16] Approximately 1566 sheep; 1222 alpacas; 334 goats; 47 rabbits; 31 llamas reported between July & August 2013.

the qualitative data were developed based on responses from the pilot study. Examples included name of the animal, color, and the specific breed. Codes were refined based on the larger number of responses, and diversity of marketing strategies reported in the actual study (Table 3).

Table 3: Frequency of marketing strategies among 44 NY fiber farmers

Code	Frequency
Fiber Characteristics	20
Fiber Animal Heritage	18
Individualization of Fiber Animals	17
Local Production	12
Ecological Significance	6
Animal Welfare	4

Fiber characteristics

The most frequent marketing information was describing fiber characteristics. Farmers tell customers about performance benefits associated with specific fibers to expand knowledge about the fiber's unique features. Table 4 conveys information that farmers communicate about sheep's wool, goat's mohair, and alpaca fibers:

Table 4: Representative statements reflecting fiber characteristics

NY Farm & Location	Quote
Dashing Star Farm, Millerton NY	I additionally inform consumers about the health benefits of wool bedding products unique characteristics of the fibre itself (natural flame retardancy, moisture wicking capability, temperature moderating and insulating capacity, and natural colors, crimp and curl).
Laughing Goat Fiber Farm, Ithaca NY	I tell customers about how mohair has been used in upholstery, suiting, rugs, socks etc because of its durability and the length of the fiber. It has luster, and it takes dye very well, two factors which make items seem attractive.
Not Available	I like to tell people the advantages of alpaca fibe[r]…non allergenic, warmth, doesn't itch, natural product.

Although the farmers reference home textiles (bedding and upholstery), fiber characteristics highlighted are also relevant to clothing. The information provided aligns with efforts of clothing brands, like *Icebreaker* and *Smartwool*, to communicate information about wool's valuable functional characteristics. Apparel brands emphasize wool's insulative, cooling, and wicking properties. Additionally, clothing brands *Eileen Fisher*, *Purely Alpaca*, and *Simply Natural Clothing* highlight the alpaca fiber's hypoallergenic quality, diversity of natural shades, and the hollow fiber feature that makes clothing lightweight.

Fiber Animal Heritage

The second most frequent marketing information communicated by fiber farmers was the fiber animal's breed, history on the farm, and lineage story. Farmers describe whether the animal is a unique cross, the rarity aspect, or selective breeding practices that help increase fiber quality

among the specific breed. Farmers also take pride if a fiber animal won a ribbon at a fiber festival. Table 5 are selected statements reflecting pride in raising unique fiber animals:

Table 5: Representative statements reflecting fiber animal heritage stories

NY Farm & Location	Quote
8 Hands Farm, Cutchogue NY	Icelandics [sheep] have a unique dual coat, so we explain that information to knitters and spinners.
Ellis Hollow Farm, Ithaca NY	Suri Alpaca – This is currently a rare fleece to obtain – there are about 30 animals of this type in NY at this time. My stud's fleece has won Champion at competition.
Windsong Farm, Burdett NY	Wensleydale and Cotswold sheep are rare breeds that produce lovely lustrous longwools.

As part of the history and legacy of sheep, farmers also highlight conservation efforts. Jay Ardai from the *Hog Island Sheep Farm* in Genoa NY uses labels that convey conservation aspects of the sheep. In a farm tour, he explained that Hog Island sheep were isolated for several generations on a barrier island near Virginia (J. Ardai, personal communication, August 6, 2013). It is believed that the Hog Island sheep have genetics similar to sheep of the 1600s. The *Nature Conservancy* found the sheep in the 1970s, and gave the sheep to farmers to raise. Jay explained:

> The first conservation group that got them was actually Williamsburg, colonial Williamsburg, because they figured that that sheep would have been more indicative of what a sheep would have been back in the colonial days before man really kept heavily, heavily breeding the sheep to get to what worked for men. These sheep had been bred backwards for what worked for sheep. Obviously the strong ones survived, the weak ones died…

The farmers work with the *American Livestock Breeds Conservancy* to help maintain genetic diversity among the 22 sheep of the estimated 200 that remain in the world. The farmers indicate that they are able to sell all of the Hog Island fiber products because of the sheep heritage story.

The label in Figure 20 expresses the distinguished heritage story of Jacob Sheep in Trumansburg NY.

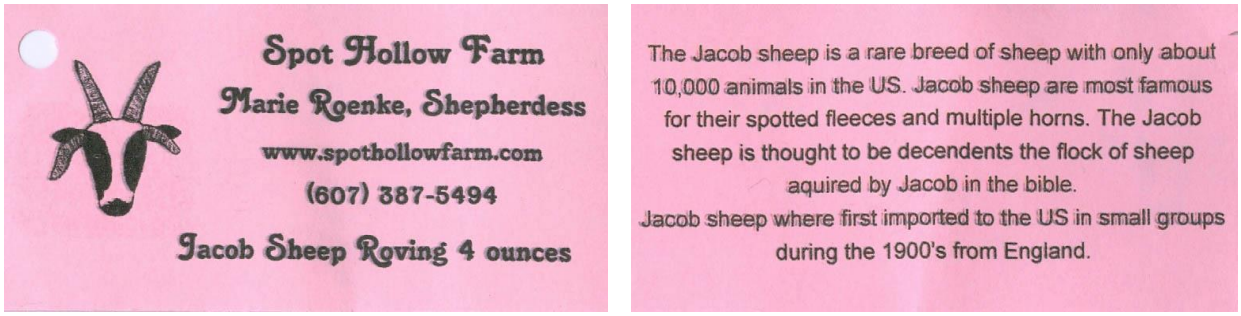


Figure 20: Front and Back of marketing label for sheep's roving from survey respondent, 2013. Image Courtesy Marie Roenke.

Individualization of Fiber Animals

Farmers further individualize their fiber animals by communicating information about the animal's name, personality, and provide photographs of the fiber animals. This is typically done on webpages, or in direct conversations with customers at fiber festivals or farm tours. One farmer commented, "I tell them how sweet angoras are, and that the cashmeres are rascals." Farmers provided extensive information about their fiber animals, which adds value to their fiber products, and to the customer's experience of observing or buying the products (Parry, 2013).

Farmer from the *AREA Cria-tions Alpaca Farm* in Fort Ann, New York discussed challenges with including individualized information about each animal (personal communication, August 16, 2013). In the past, she processed each fleece individually to honestly match a specific animal with a product, but explained that the overall costs were too high. She explained that processing a three-pound alpaca fleece costs more than a ten pound fleece because fibers got consumed in the large processing machinery.[17] Due to cost issues, the farmer began organizing fleeces by color and micron count to process a larger amount.

[17] The mill owners of the Fingerlakes Woolen Mill explained that approximately 30% of a small amount of fleece can be lost in picking, carding, and de-hairing machinery (personal communication). It is more

Ecological Significance & Animal Welfare

Farmers also highlighted environmental benefits of using animal fibers, which contributes to the Slow Fashion paradigm and cyclical thinking. Farmers emphasized natural aspects and "the sustainability of wool as a renewable resource." Some also mentioned that the fiber animals are "100% grassfed, humanely raised." Farmers from the *Hog Island Sheep Farm* explained concerns in labeling fiber products organic; no farmers in this study reported having "organic" certification. The largest concern for organic certification was not being able to give antibiotics or vaccinations to sheep to prevent internal parasites. Since medicines contain synthetic ingredients, using them would violate organic standards. Ironically, organic certification can induce health risks for sheep, and conflicts with animal welfare efforts to secure the animal's well-being. Hustvedt, Peterson, and Chen (2008) suggest that consumers have a greater concern for animal rights and animal welfare, compared to organic environmental attributes of wool.

Few sheep farmers produce organic wool because of the health risks it induces on sheep (Druchunas, 2002).[18] The criteria for organic certification is based on livestock food processing standards developed by the *National Organic Program* under the USDA; there are currently no standards in place that account for wool as a by-product of sheep. As a result, alternative labeling strategies are used that reflect environmental benefits of raising sheep for wool. Some alternative labels include "sustainable," "eco-friendly," and "all natural" (Bernard, Hustvedt & Carroll,

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economically feasible to process more fleece because the machinery will consume less overall; half a pound of 100 pounds for example.

[18] It is possible for sheep farmers to obtain organic certification for wool (Druchunas, 2002). Becky Weed from the Thirteen Lam and Wool Company in Idaho explained that she uses diverse pest management strategies to reduce internal parasites of her sheep. Methods range from genetic selection to resist parasites to rotational grazing. However, internal parasites are not completely eliminated, there are risks for of high sheep losses, and higher costs for organic feed.

2013). However, these claims are ambiguous and consumers may not have a clear definition of what each one entails. Findings from Peterson's study indicate that American consumers have a highest willingness to pay for wool products labeled "organic" compared to other alternative labels; however, the standard definition does not reflect animal health implications that farmers communicate.[19] Based on greater consumer interest in "organic" wool, the researchers suggest that the *National Organic Program* should develop organic standards for wool producing sheep, rather than applying livestock standards.

Local Production

Fiber farmers expressed gratitude towards the mill infrastructure available in New York. Two mills will be highlighted based on site visits and the in-depth information from the semi-structured interviews.[20] In Genoa New York, the *Fingerlakes Woolen Mill* was established in the 1990s and purchased by the current owners in 2001. Mill equipment was inherited from an existing mill, and are remnants of the New England textile mill industry, which eventually shifted to the South for cheaper labor. The oldest equipment were a wool opener from 1925, carders from the 1930s, and a spinning frame from 1946 (J. Ardai, personal communication, August 6, 2013). Approximately 2,000 to 4,000 pounds of fibers are processed annually into roving and yarns. *Battenkill Fibers Carding and Spinning Mill* in Greenwich NY, was established in 2009 to continue the 200 year legacy of fiber processing in the Upper Hudson Valley (Wright, 2013). Their availability also helps support the economic development of small

[19] Definition of "Organic:" Items must be certified to the USDA's organic standards, and must be inspected and certified before labeling. This means no synthetic pesticides, hormones or antibiotics, no irradiation, no artificial coloring or genetically modified (GM) ingredients, and no petroleum or sewage sludge fertilizers. Organic also means that animals were grass fed organic fed, and had access to pasture or the outdoors (Peterson, Hustvedt & Carroll, 2013).

[20] There are several that are valuable assets to the economic stability of fiber farmers.

family fiber farms with the creation of value-added products (K. Kennedy, personal communication, August 16, 2013).

Farmers commonly use more than one mill to create their final products. Fibers are also sent to regional fiber pool cooperatives where they are processed on a commercial scale, and turned into final products (NEAFP, 2013). Table 6 conveys farmer's comments on their expertise of domestic mill infrastructure and the different services provided:

Table 6: Representative statements regarding different mills

NY Farm & Location	Quote
Springside Farm, Pompey NY	[V]ery few prime [high quality fibers] are sent to the New England Fiber Pool. Our yarns and most of the rovings are made here in this county by Salt City Fibers…or by A+ Fiber Mill in Jordan [New York]... Salt City also does alpaca/wool blends ... A+ can do blends very well, but she's stellar at doing heathered color mixing in alpaca, no one better, and I like to support both mills.
Eagle Hollow Farm, Walton NY	[F]or roving, I send to Loch's fiber and Maple in PA. They're also great for saving scrap pieces to be made into felt pads. (They hate waste). For blankets that are super-fine but may need some de-hairing, then they need to be sent to a mill with a de-hairing machine such as Autumn Mist fiber mill [in NY]… For clothing, bags of blanket fiber are cleaned, weighed, and sent to New England fiber co-op. In exchange, their "Made in the USA from US fiber" products are available to you at wholesale prices.
Dashing Star Farm, Millerton NY	We find that the demand for our wool product in general has increased steadily over the past nearly 20 years we have been in operation. The very high quality semi-worsted process employed by Battenkill Fiber & Carding Mill has made our yarns even more marketable. We are especially happy to have been able to reduce our carbon footprint by having the ability to have our wool processed here in NY state.

Local production labels and manufacturing information are also important marketing features. Farmers use the slogan "New York USA bred and raised," note specific state landmarks

like the Hudson Valley, or use the "Pride of New York" logo. Farmers also make broader references to USA or domestic production.

NY Fiber Farm Benefits

Fiber farmers and mill owners are assets to each other as they symbiotically contribute to each other's economic growth and stability. They have developed strong social networks and take pride in their contributions to the New York local textile and clothing industry. There seems to be a strong fiber culture that values connections with people, especially with the wide array of opportunities to collectively interact during festivals and tours. Educational outreach is instrumental to both fiber farmers and mill owners. An alpaca farmer indicated:

> Alpacas in the field stop traffic on the road. Visitors then often come in for a tour of the farm. Because we also sell eggs, honey, and other farm products, our visitors often go home with more than just fiber products. Plus, the local school loves a fiber farm field trip. :) (*Eagle Hollow Farm*, Walton NY)

Additionally, the owner of the *Fingerlakes Woolen Mill* explained that both fiber farmers and members of the community appreciate their availability. He explained:

> I'm probably helping to keep a service alive for local people and there are quite a few locals that bring their wool here, and even I'm amazed that people will drive hours to bring it to the mill… (*Hog Island Sheep Farm*, Genoa NY)

He further explained that home schooled children and interested community members visit the mill and are amazed at the industrial machinery since it is not commonly seen. These quotes suggest that the novelty of both fiber farms and the mill physical infrastructure attracts community attention. With the rich social and physical infrastructure, the New York Fibershed conveys prospects for future growth.

NY Fiber Farm Challenges

As alluded to earlier, the most common challenges farmers identified was in marketing fiber products successfully. Farmers identified difficulties finding the target market, extensive

time commitment to market products, marketing tactile products online, and limits to create a "strong loyal following." One respondent discussed the challenges regarding income, marketing, and the current US textile industry:

> Poor economics, virtually no domestic textile industry left to which to market fiber. L[i]ke many small-scale fiber producers [we] have to vertically integrate to sell [fiber] product[s]. (*Little Creek Farm*, Salem NY)

The re-development of a domestic clothing and textile industry under the Slow Fashion paradigm can stimulate greater availability and demand for local clothing. Fashion industry partnerships can help relieve farmers from managing every single aspect of their value chain, especially in reaching the target market with retail in urban centers. A farmer with sheep, alpaca, and angora rabbits expressed the challenge of selling fiber products while competing with mass-produced low-cost fiber products:

> Some years having to work harder to sell product because of the economy and [W]almart selling those che[a]p non animal fiber or fake animal fiber items for 10 bucks when we need to sell sweaters for well over a hundred or even two. When all people are looking at [is] the price not the quality. (Farm name not available)

This farmer alludes to the impact of the fast system that emphasizes quantity over quality. In response to this, fiber farmers are striving to highlight the value of their processes and expand consumer understanding of their work, which aligns with the Slow Fashion paradigm.

Farmer's efforts to connect their customers with their fiber animals reflect transparency in their value chain. It also connotes care in their work as they take time to communicate heritage stories and individualize their fiber animals. In the survey, marketing was identified as a primary challenge; however, these farmers are very active in keeping potential customers informed, especially with stories that add sentimental appeal. The time fiber farmers take to develop marketing strategies and directly interact with their customers reflects a passion and commitment to their entrepreneurial fiber farm business that is part of diversified agriculture. This

significantly contributes to the Slow Fashion paradigm because it highlights the care farmers take in their relationships with their fiber animals and customers.

Limitations

A limitation to the Fiber Farm Survey was that only fiber farmers who had information posted on the Internet were contacted (i.e. farm webpage, Facebook page, blog). This left out fiber farmers who are not listed on the Internet, but may have a well-established fiber farm business. Farmers were also only contacted through email, and required access to Internet to respond to the survey. This issue became apparent when one respondent indicated that she would respond to the survey the next time she was in the library. Distributing the survey through email and as a hard copy would have been ideal to reach a broader sample of fiber farmers.

Part 2: NY Consumer Survey

An experimental consumer survey was developed to determine preferences for New York produced knitwear. The knitwear was hand-made with locally sourced materials to fully understand the "Soil to Soil" model and symbiotic relationships among the artisan, farmers, and mill owners. The first step was creating a knitwear product from local yarns. The "Opulent Raglan Sweater" pattern, developed by professional knitwear designer Wendy Bernard, was created and modified in the sleeves and neckline. The original pattern was published in *Knitscene, Interweave Knits* in Fall 2008. The sweater has been made by over 250 people on *Ravelry.com*, and is very popular. The popularity of the sweater provided motivation to use it in marketing conditions of the consumer survey as a standard knitwear design.

Methodology

Experimental Design

Marketing strategies implemented by fiber farmers, as well as wool marketing literature shaped the marketing conditions developed for the Consumer Survey as seen in Figure 21. The primary goal of the survey was to determine how marketing conditions with different levels of information, and fiber types influenced consumer responses to existing scales. Three different animal fibers were chosen from different New York farms (1) wool, a basic fiber, (2) cashmere, a luxury fiber, and (3) alpaca, an exotic fiber. Overall, the study consisted of nine different marketing conditions, with one randomly presented to female respondents.

Although most consumer studies focus on analyzing the effect of one fiber type, wool, several studies also consider wool and blends of other natural fibers like mohair and alpaca (Peterson, Hustvedt & Chen, 2012; Hustvedt, Caroll, Bernard, 2013; Barnett, 2003). This study aims to expand knowledge of how fiber type and level of information can influence consumer evaluation of knitwear made of animal fibers. Labeling largely influences consumer's perceptions of animal fiber products. Regional slogans that cue consumer interest include "Go Texan" and "Virginia Grown" (Hustvedt, Bernard, & Peterson, 2012). The levels of information include: basic information with a photograph of the sweater, fiber content, and care information (Figure 22, 25, 28); basic with a focus on local production (Figure 23, 26, 29); and basic with a focus on individualizing the fiber animal (Figure 24, 27, 30). Consumers also prefer labels with a photograph of the fiber animal rather than the farm environment (Hustvedt et al., 2012). The following existing scales were used to measure consumer perceptions: product personality congruence, user image congruence, and product attachment. Three attitudes were measured

including local consumption attitude, local fiber attitude, and consumer ethnocentricity, which is preference for domestic products.

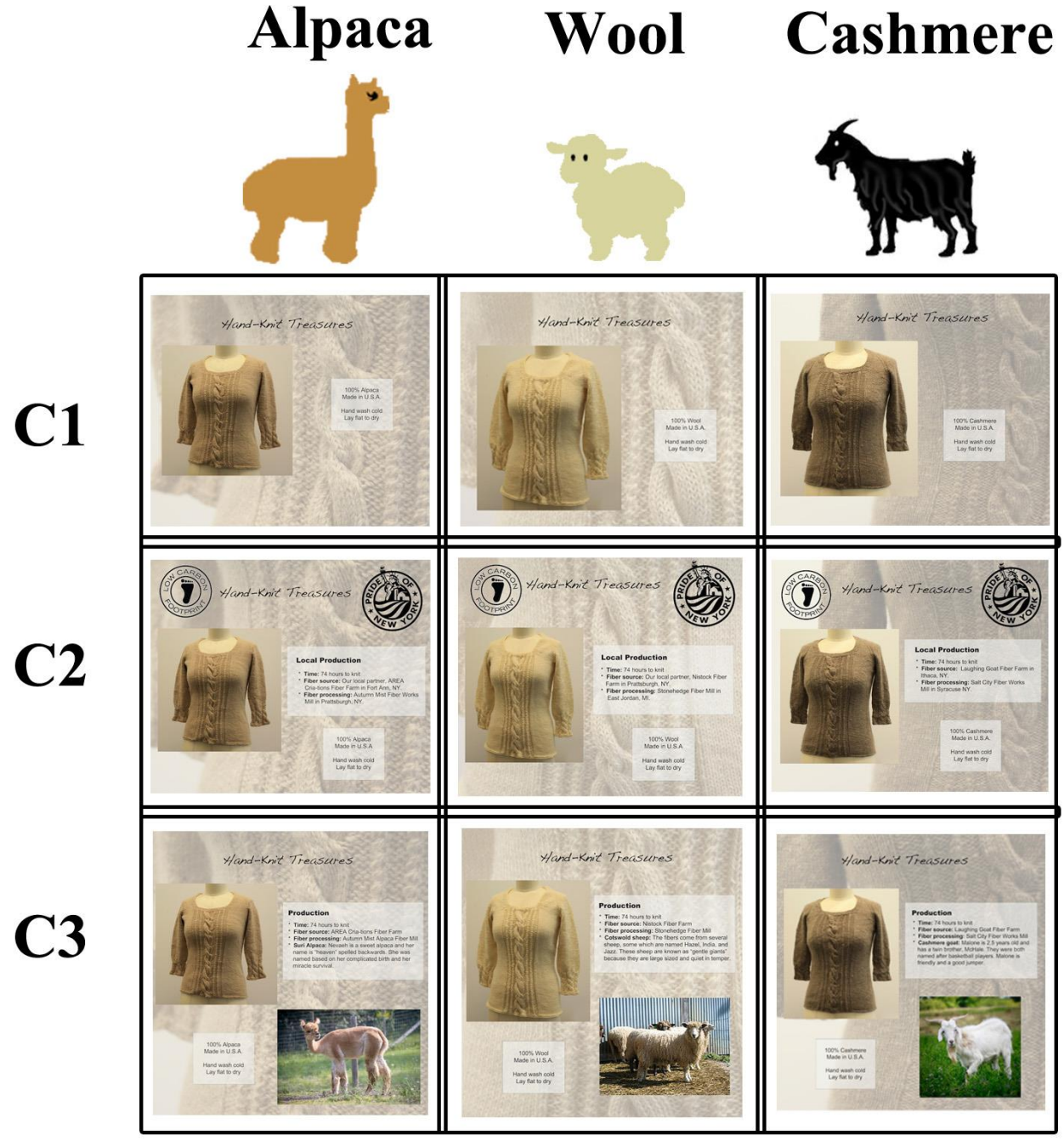

Figure 21: Marketing conditions developed for consumer survey

Figure 22: Condition 1 cashmere sweater

Figure 23: Condition 2 cashmere sweater

Figure 24: Condition 3 cashmere sweater

Figure 25: Condition 1 alpaca sweater

Figure 26: Condition 2 alpaca sweater

Figure 27: Condition 3 alpaca sweater

Figure 28: Condition 1 wool sweater

Figure 29: Condition 2 wool sweater

Figure 30: Condition 3 wool sweater

Pilot Study

Existing survey scales from animal fiber and industrial design literature were implemented into the study. Table 7 presents the scales and sources; all scales were measured on a 5-point Likert scale (1=strongly disagree, 5= strongly agree). Since these scales were drawn from several sources, a pilot study with 38 university students and community members was conducted to confirm reliability in this study's context. All Cronbach values were above 0.60. One scale "self-identity as an environmental consumer" was replaced with more relevant scales "local fiber attitude" and "local consumption" (Hustvedt, Carroll & Bernard, 2013). In the pilot study, participants were randomly assigned to one of the eight groups for two type fiber types—cashmere and wool. Their input further helped refine the marketing conditions, especially with commentary on how to make the photograph of the sweater more objective. The sweater was placed on a dress form instead of a person to prevent biases. Since the marketing conditions were altered, a second pilot study was launched with responses from 41 people. The second study further confirmed the reliability of the scales and aided in further refining marketing conditions to reduce them from twelve to nine for all three fiber types. No pilot responses were included in the final analysis.

Table 7: Pilot study 2 scales used and reliability (n = 41)

Scale	Cronbach α from original source	Original source
Product Personality Congruence	0.928	(Govers & Schoormans, 2005)
User Image Congruence	0.946	(Govers & Schoormans, 2005)
Product Attachment	0.875	(Mugge, Schifferstein, Schoormans, 2010)
Product Evaluation	0.917	(Govers & Schoormans, 2005)
Consumer Ethnocentricity	0.920	(Adapted from Shimp & Sharma, 1987, in Hustvedt, Carroll & Bernard, 2013)
Local Fiber Attitude	0.929	(Hustvedt, Carroll & Bernard, 2013)
Local Consumption	0.871	(Hustvedt, Carroll & Bernard, 2013)

Hypotheses

All products have an intrinsic complexity beyond physical appearance. Norman (2004) highlights how products embody three core components including visceral design (appearance), behavioral design (pleasure, usability), and reflective design (self-identity, memories). These aspects determine our interaction and use of products. Product personality is defined as human personality characteristics ascribed to a product (Mugge, Schoormans, & Schifferstein, 2008). Physical appearance is the primary determinant of a product's personality based on previous research indicating that human physical appearance dictates perceptions of personality (Jones, 1990; Borkenau & Lieber, 1995). Additionally, physical appearance, marketing, and interaction with the product also influence product personality (Norman, 2004). The perceived personality of a product can predict how a person will treat it; if a product is perceived to have a delicate, sensitive personality, the person is more likely to treat it carefully.

Product-personality congruence is the perceived parallel between the described product's personality, and the person's own personality. Product appearance as a predictor of product-personality may not be enough to determine complex personality characteristics. Communication and marketing also contribute to personality perceptions. Product personality congruence influences consumer preference of products (Govers & Schoormans, 2005). User image congruence is commonly measured with product personality congruence and is how much a person agrees that they match the stereotypical persona of a product user. Gover's study suggests that user-image congruence also influences consumer preference, which shaped the hypotheses:

H1: The influence of marketing conditions on product evaluation is mediated by (a) product personality congruence and (b) user image congruence.

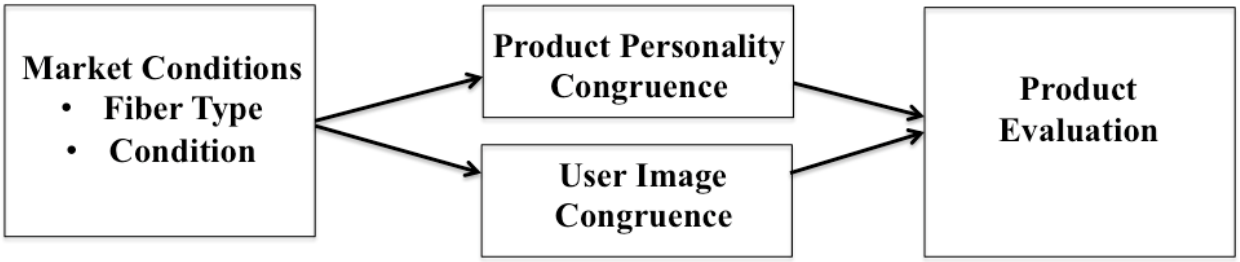

Figure 31: Visually represents Hypotheses 1

Along with local pride labels, level of consumer ethnocentricity, pride towards American produced products is also important to consider (Shimp & Sharma, 1987). People with high ethnocentricity tendencies believe that purchasing foreign products hurts the domestic economy and reduces employment opportunities. People with low ethnocentricity consider the country of production less, and make purchase decisions by evaluating the product itself. Social-psychological factors and demographics like community cultural diversity, patriotism, conservatism, gender, education, and income influence ethnocentricity (Shimp, Sharma & Shin, 1995). Findings from Hustvedt, Carroll, and Bernard (2013) suggest that consumers with high ethnocentricity are willing to pay a higher price for state and U.S. knitwear. High consumer ethnocentricity is also associated with positive local fiber and local consumption attitudes. Existing attitudes can influence product evaluation, which informed the following hypotheses:

H2: High consumer ethnocentricity (H2a), preference for local consumption (H2b) and preference for local fibers (H2c) positively influence product evaluation.

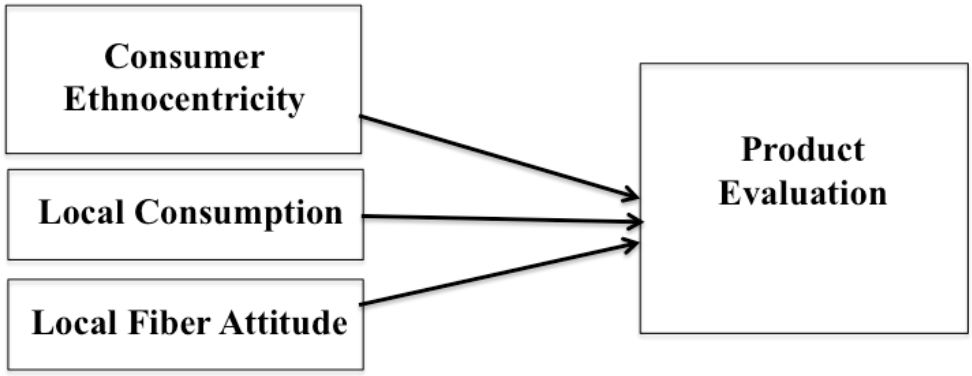

Figure 32: Visually represents Hypotheses 2

We consume products that are "symbolic expressions of who we are" (McDonagh, Bruseberg & Haslam, 2002, p. 232). Product attachment is a strong person-product relationship driven by an emotional bond that can lead a product to be a "favorite" (Mugge et al., 2008). Common feelings associated with favorite products include happiness, love, nostalgia, warmth and pride (Schultz, Kleine & Kernan, 1989). Memories, hand-made, uniqueness, and high quality are predictors of long-term use of clothing (Niinimäki, 2010). Niinimäki and Koskinen (2011) suggest that feeling "positive emotions," such as greater self-esteem, confidence, and joy can lead to prolonged use of clothing (p.172). This positivity can stimulate greater sentimental attachment that can sustain a person's self-esteem and well-being. Based on *Local Wisdom* ethnographic research, long-term use of clothes is determined by satisfaction, memories, and social interactions (Fletcher, 2012). A study by Niinimäki and Armstrong (2013) suggests that people who owned clothing for more than 20 years kept clothing because it is associated with a "cemented memory." It was noted that the clothes kept for over 20 years were rarely used, or kept in storage. One person reflected a sentimental anecdote, "My late mother knitted the sweater. It is warm, comforting…just like her" (p.197). Product attachment can be difficult to

measure especially since emotions toward clothes can change rapidly (Richens, 2008). Scenarios with a memory can effectively predict attachment to products (Mugge, Schifferstein & Schoormans, 2010). This literature helped shape the final hypothesis:

H3: The influence of marketing conditions on product attachment is mediated by the presence of a memory scenario about the product.

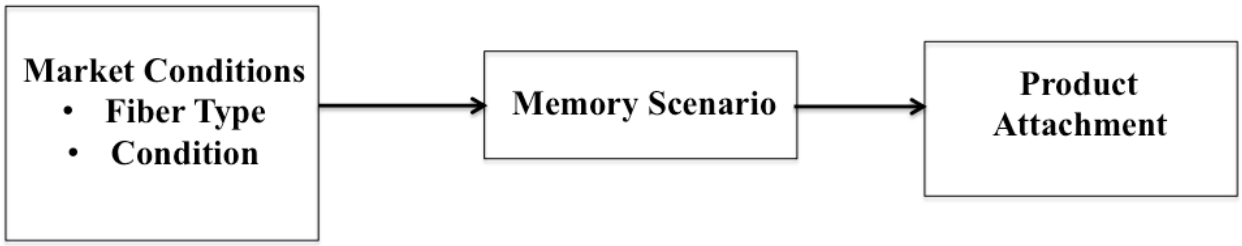

Figure 33: Visually represents Hypotheses 3

In this study, two scenarios were created to test the hypothesis. One of two scenarios were randomly presented to respondents before they answered the Product Attachment scale. The first scenario was very descriptive with a memory association, and asked respondents to refer to the sweater shown in the beginning of the survey. The memory scenario stated:

> Ashley purchased the sweater in New York before she left to attend college out of state. She appreciated the hand-made quality and realized she would have a low-carbon footprint if she purchased the sweater. She enjoys wearing it because it is soft, warm, and reminds her of her hometown.

The second scenario indicated: Pretend the sweater shown in the beginning of the survey belongs to Ashley.

Findings

Sample

The consumer survey was distributed broadly to women in New York. Respondents were recruited through NY *Ravelry* group forums, and list serve emails distributed by a NY knitting business, women's organization, and student organization University list serves. The survey received a 55% response rate; 453 people began the survey, and 250 were fully completed.

Twenty-eight survey responses were removed from the final sample because they were partially completed with only one or two scales completed. The sample was a convenient sample of willing women living in NYS, it was not a completely random sample since there were some non-responses (Bryman & Cramer, 1990). Twenty participants were randomly chosen to receive a cash incentive for their participation.

Table 8 conveys the demographics of survey respondents. A significant amount of respondents were recruited from *Ravelry.com*. The large response rate from "other Professionals" reflects this; occupations under this category included farmers, artists, veterinarians, attorneys, librarians, and journalists.

Table 8: Demographics of Consumer Survey

Characteristics	Survey Respondents	
	N	**Frequency %**
Age	N= 243	
18-24	44	17.6%
25-44	96	38.4%
45-59	60	24.0%
60-84+	43	17.2%
Race	N= 242	
Caucasian	189	75.6%
African-American	8	3.2%
Native-American	2	0.8%
Latina	17	6.8%
Asian	18	7.2%
Inter-racial	8	3.2%
Occupation	N= 240	
Undergraduate	34	14.2%
Graduate student	27	11.3%
Faculty/ Staff	41	16.4%
Other Professional	138	57.5%
Income	N= 230	
Less than $10,000	41	16.4%
$10,000 to $24,999	30	12.0%
$25,000 to $49,999	53	21.2%
$50,000 to $74,999	43	17.2%
$75,000 and over	63	25.2%

Results

Product Personality

The "personality" of each sweater was established by the survey respondents after they viewed the marketing condition randomly assigned to them. The open-ended question: "Think of this sweater as if it were a person. What personality characteristics would you give it?" was presented to each respondent to prepare them for the product-personality congruence scale (Govers & Schoormans, 2005). Typical personality characteristics assigned to common household products in Gover's study included "reliable, honest, warm, rugged, distant, and

arrogant."[21] In the current study, a total of 240 respondents (96%) provided a response to the question. Figure 34 conveys the adjectives used to describe the personality of the sweaters. The larger words such as "warm," "conservative," and "friendly" were used more frequently than the words in smaller font including "romantic," "modest," and "loving." Figure 35 provides an example of a marketing condition and respondent's open-ended responses.

[21] A few personality descriptors for 3 screwdrivers, 3 coffee makers, 3 soap-dispensers, and 3 table wines (Govers & Schoormans, 2005).

Figure 34: Visual representation of personality characteristics 240 respondents assigned to the sweater prior to answering the survey scales

- Feminine, flirty, sweet, innocent
- Gentle, pretty, stylish.
- Conservative, sweet, mature, old
- Modest, humble, regular-joe
- Quiet. Someone who can stretch endlessy but might not bounce back. Huggable
- Kind, generous, warm, loving, dependable, good sense of humor

Figure 35: Representative statements regarding personality characteristics based on marketing condition

Table 9: Consumer Survey Scale Items & Reliability

Variable	Meaning	Items	Cronbach α
Product personality congruence M = 2.63 SD = 1.14	How much the respondent's personality matches the personality characteristics they assign to the sweater.	• The sweater is like me • I do identify with my description of the sweater • This sweater matches me • When I consider my own personality and compare it to the description I provided in the previous question, I am similar to the sweater.	0.92
User image congruence M = 3.14 SD = 1.14	How much the respondent matches with the person they imagine would buy the sweater.	• I do identify with these kind of people • I am like these kind of people • The way I see myself is similar to these kind of people	0.94
Product attachment M = 3.85 SD = 0.67	Perceived attachment to a product based on whether a memory scenario is presented about the sweater, or not.	• The sweater has no special meaning to Ashley* • The sweater is very dear to Ashley • Ashley has a bond with this sweater • The sweater does not move Ashley* • Ashley is very attached to this sweater • Ashley feels emotional attached to this sweater	0.82
Product evaluation M = 3.29 SD = 1.13	Respondent's preference for the sweater.	• I think this sweater is beautiful • I would like to have this product • I think this sweater is attractive • I think this is a good sweater	0.89
Consumer ethnocentricity M = 2.82 SD = 0.75	Respondent's preference for domestically produced products compared to products made in other countries.	• It is not right to purchase foreign products because it puts Americans out of jobs • Only those products that are unavailable in the U.S. should be imported • It may cost me in the long run, but I prefer to support American products • American products, first, last, and foremost • It is always best to purchase American products • American people should always buy American-made products instead of imports	0.86
Local Fiber Attitude M = 4.56 SD = 0.56	Respondent's preference for locally produced fibers.	• Purchasing products made from locally grown fiber is worthwhile • Purchasing products made from locally grown fiber is good • Purchasing products made from locally grown fiber is beneficial • Purchasing products made from locally grown fiber is wise	0.86
Local consumption M = 3.864 SD = 0.58	Respondent's preference for locally produced products.	• I prefer to buy locally • I try to buy products that are from STATE • I like to shop at locally owned businesses • I am interested in supporting local agriculture • It is important to me to know the owners of the stores I shop	0.80

*Indicates reverse coding

Reliability & Validity of Scales

The Cronbach alpha values of all scales expressed high reliability, all above 0.80. Product personality congruence (α 0.924); user image congruence (α 0.94); product attachment (α 0.829); product evaluation (α 0.895); consumer ethnocentricity (α 0.865); local fiber attitude (α 0.862); local consumption (α 0.802). Table 9 conveys all scale items, means, standard deviations, and Cronbach alpha reliability values.

Principal component analysis was used for exploratory factor analysis after referencing the original literature from which scales were adopted from; the validity of the "local fiber" attitude scale was originally analyzed using an additive method, but is included in the exploratory analysis for consistent reporting (Hustvedt, Carroll & Bernard, 2013). Varimax rotation, typical protocol in factor analysis, was not implemented because only one component was extracted from each existing scale (Ho, 2006). No scale items were removed because all had relatively high factor loadings (Appendix S).

Approximately 30 respondents of the sample (10%) were exposed to one of the nine marketing conditions randomly. As seen in Table 10, the number of people exposed to the marketing conditions ranged from 24 to 32. Although the conditions were randomized evenly, the Qualtrics Survey software was not able to detect whether a respondent completed the survey. This caused an uneven distribution of the marketing conditions, and manual adjustments were necessary. Although there were several manual adjustments to the random distribution of conditions, time constraints limited capabilities to reach the goal of 30 respondents per condition.

Table 10: Random distribution of the 9 marketing conditions

Marketing Condition	Respondents
1. Alpaca, Basic	27
2. Alpaca, Local	26
3. Alpaca, Personality	28
4. Cashmere, Basic	32
5. Cashmere, Local	27
6. Cashmere, Personality	30
7. Wool, Basic	24
8. Wool, Local	30
9. Wool, Personality	26

In order to analyze the effect of marketing condition on each variable, conditions were separated into two categories—fiber type and level of information. The following expresses the codes each was assigned: alpaca sweater (1), cashmere sweater (2), or a wool sweater (3); level of information included basic (1), an emphasis on local production (2), or an emphasis on the animal's personality (3). Table 11 reflects the amount of respondents randomly assigned to each fiber type and level of information. The SPSS software automatically generated dummy variables for these categorical variables that were labeled as "Ref" throughout the analysis outputs.

Table 11: Random assignment for different fiber types and information

		Respondents
Animal Fiber Type	1. alpaca	81
	2. cashmere	89
	3. wool	80
Level of Information	1. basic	83
	2. local	83
	3. personality	84

Univariate ANOVA analysis with Statistical Package for the Social Sciences (SPSS) was used to determine significant associations among variables. ANOVA is a standard analysis in previous local fiber and product attachment studies (Hustvedt, Carroll & Bernard, 2010; Mugge,

Schifferstein & Schoormans, 2010). One variable was created to represent the mean of all items. For example, product personality congruence had four items, and a single variable was created based on the mean from the 250 study sample. Creating a single variable to represent the four items assisted in the analysis of the relationships between independent and dependent variables. Multicollinearity analysis was conducted to determine whether variables were highly correlated. All variables had a variance inflation factor (VIF) below 3, which indicated a low multicollinearity and no adjustments to the variables were necessary (Table 12). Additionally, variable residuals, or standard errors were plotted on a histogram after regressions were run for each hypotheses. All histograms conveyed a normal distribution between predicted and actual outcomes, and no adjustments were required.

Table 12: Correlation and Multicollinearity of Variables

Knitwear Sweater							
	PP***	UI	PE	LF	LC	CE	PA
Product Personality	-						
User Image	0.759**	-					
Product Evaluation	0.570**	0.549**	-				
Local Fiber	0.115	0.223**	0.177**	-			
Local Consumption	0.121**	0.191**	0.139**	0.464**	-		
Consumer Ethno	0.173**	0.133*	0.249	0.439**	0.443**	-	
Product Attachment	0.242**	0.249**	0.216	0.181**	0.124	0.63	-
Collinearity Statistics							
Tolerance	-	0.609	0.610	0.695	0.707	0.699	0.912
VIF	-	1.643	1.638	1.439	1.414	1.430	1.097

*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)
***Dependent Variable
N=240

Hypotheses 1:

Overall, the marketing conditions did not have any effect on product evaluation to fully support Hypotheses 1. However, product personality and user image congruence both had

positive effects on product evaluation. Table 13 conveys the results from the univariate analysis. For product personality congruence the relationship can be expressed as $\beta = 0.314$, $p < 0.001$. Based on the parameter estimates, for every 1 unit increase in product personality, it is expected that product evaluation will increase by 0.314. For user image congruence the relationship is described as $\beta = 0.335$, $p < 0.001$. The parameter estimates predict that for every increase in 1 unit in user image congruence, product evaluation will increase by 0.335. With this analysis, Hypotheses 1 is not fully confirmed since the influence of marketing conditions on product evaluation is not mediated by product personality congruence or user image congruence, as shown in Figure 36.[22]

Table 13: Hypotheses 1 univariate ANOVA analysis

Dependent Variable: Product Evaluation

Variable	**β**	**Standard Error**	**t**	**P-Value**
Product Personality Congruence	0.314	0.076	4.118	<0.001
User Image Congruence	0.335	0.076	4.405	<0.001
Alpaca Fiber	0.088	0.241	0.365	0.715
Cashmere Fiber	-0.094	0.238	-0.393	0.695
Wool Fiber	Ref	.	.	.
Basic Info	0.55	0.251	0.218	0.828
Local Info	0.247	0.237	1.043	0.298
Personality Info	Ref	.	.	.

Wool Fiber and Personality Info were automatically assigned to be dummy variables, the "Ref" groups

[22] In this model, approximately 42% of the variance is explained, with the remaining 58% explained by other unknown factors.

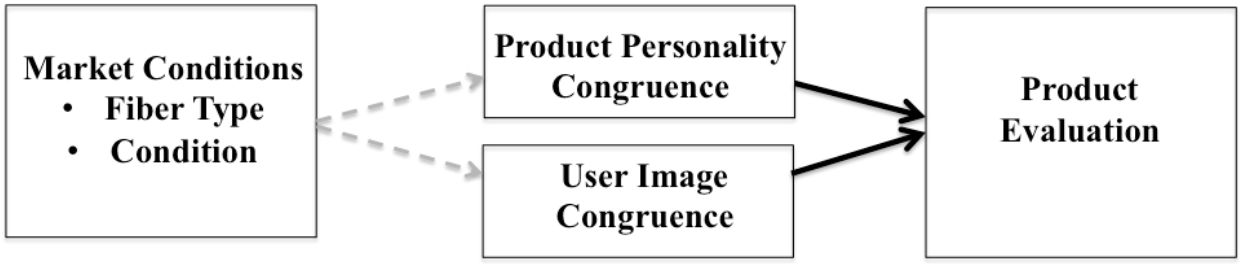

Figure 36: Visually represents results of Hypotheses 1

Although the New York fiber farm knitwear marketing conditions conveyed no effect on product evaluation, positive relationships between product personality and user image congruence on product evaluation is consistent with previous research (Govers & Schoormans, 2005). Product personality and user image congruence also independently affect product evaluation, which is consistent with Govers and Schoormans' study. An inconsistency with the previous study is that product personality congruence had a stronger effect on product evaluation than user image congruence (β product personality = 0.40 and β user image = 0.35). In this study, user image congruence (β = 0.335) had a slightly stronger effect than product personality (β = 0.314).

Hypotheses 2:

All variables in Hypotheses 2—consumer ethnocentricity, local fiber attitude, and local consumption—were attitudes that were not expected to change based on the marketing conditions. Table 14 reflects the positive association found between consumer ethnocentricity and product evaluation. The relationship can be expressed as $\beta = 0.317$, $p < 0.01$. For every 1 unit increase in consumer ethnocentricity, it is expected that product evaluation will increase by 0.317. No significant relationships were found between local fiber attitude and local consumption on product evaluation, as seen in Figure 37.[23]

[23] In this model, approximately 67% of the variance is explained, with the remaining 33% explained by other unknown factors.

Table 14: Hypotheses 2 univariate ANOVA analysis

Dependent Variable: Product Evaluation				
Variable	**β**	**Standard Error**	**t**	**P-Value**
Consumer Ethnocentricity	0.317	0.109	2.911	<0.01
Local Fiber Attitude	0.161	0.145	1.109	0.268
Local Consumption	0.017	0.142	0.122	0.903

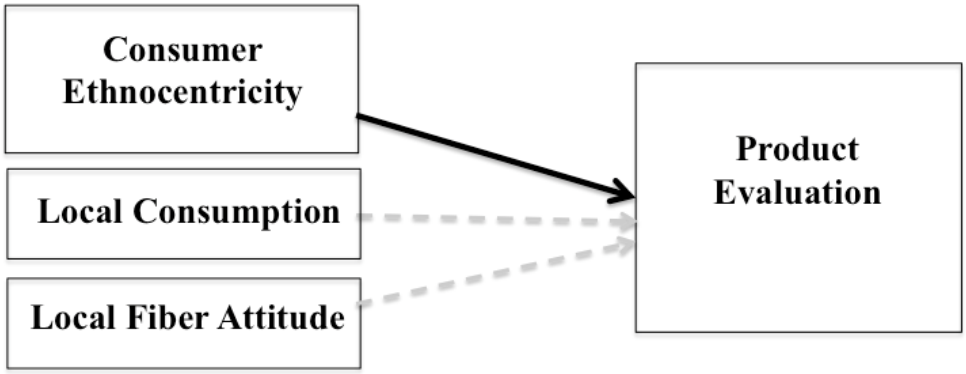

Figure 37: Visually represents results of Hypotheses 2

This study partially confirms previous findings that consumer ethnocentricity predicts purchase intentions and willingness to pay factors, which was represented as product evaluation in this study (Shimp & Sharma, 1987; Hustvedt, Carroll & Bernard, 2013). Hustvedt's study indicated that high consumer ethnocentricity is associated with positive local fiber and consumption attitudes, but these relationships are not confirmed in this study. Although local fiber (M = 4.56; SD = 0.569) and local consumption (M = 3.864; SD = 0.583) had relatively positive means in this study, they did not have a significant relationship on product evaluation. Additionally, consumer ethnocentricity had a low mean (M = 2.82; SD = 0.751), compared to Hustvedt's study that reflected high ethnocentricity.

Hypothesis 3:

To conduct the analysis for Hypothesis 3, the variable Product Attachment was centered around the study sample mean to make interaction terms meaningful. A new variable was created

to express the centered predictor value, which was the sample mean subtracted by the mean of each respondent for product attachment. One-hundred twenty-two respondents were randomly exposed to the memory scenario, and 128 were not.

The hypothesis was not confirmed (Table 15). Marketing conditions did not influence perceived product attachment if the detailed scenario was presented; however, being exposed to the memory scenario did influence perceived product attachment, as seen in Figure 38.[24] The relationship can be described as follows $\beta = 0.545$, $p < 0.01$. Based on parameter estimates, having the memory scenario resulted in a 0.545 increase in product attachment as compared to not having a memory scenario.

Table 15: Hypothesis 3 univariate ANOVA analysis

Dependent Variable: Product Attachment

Variable	**β**	**Standard Error**	**t**	**P-Value**
Memory Scenario-Yes	0.545	0.181	3.008	<0.01
Memory Scenario-No	Ref	.	.	.
Alpaca Fiber	-0.259	0.188	-1.381	0.168
Cashmere Fiber	-0.072	0.195	-0.370	0.711
Wool Fiber	Ref	.	.	.
Basic Info	-0.087	0.203	-0.428	0.669
Local Info	-0.199	0.186	-1.070	0.286
Personality Info	Ref	.	.	.

Memory Scenario-No, Wool Fiber and Personality Info were automatically assigned to be dummy variables, the "Ref" groups

[24] In this model, approximately 19% of the variance is explained, with the remaining 81% explained by other unknown factors.

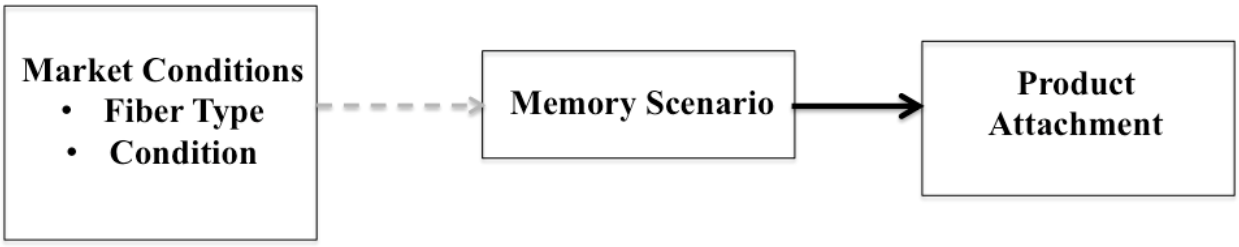

Figure 38: Visually represents results of Hypothesis 3

The positive association of the memory scenario on perceived product attachment is consistent with previous findings (Mugge, Schifferstein & Schoormans, 2010). Predicted product attachment was slightly higher for respondents who were presented with the memory scenario (M = 4.135; SD = 0.58), compared to respondents who were not presented with the memory scenario (M = 3.58; SD = 0.632). However, the difference was not as great as in Mugge's study where respondents presented with a memory scenario had an average mean of 5.18, compared to respondents not presented with a memory with a mean of 3.70. The scale of 1 through 5, and 1 through 7 may have made a difference.

Discussion of Results

The study findings suggest that marketing conditions (independent variables) had no influence on the product product evaluation (H1) and product attachment (H3) (dependent variables). Product personality congruence and user image congruence did not mediate the relationship between marketing conditions and product evaluation. Lack of significance between marketing condition, product personality congruence, and product evaluation was especially surprising because the marketing condition were designed to emphasize the individuality of fiber animals with the photograph and anecdote. For hypotheses 2, only consumer ethnocentricity conveyed a significant relationship with product evaluation, though local consumption and local fiber attitude were also expected to influence product evaluation. These were all existing attitudes and were not expected to be influenced by the marketing conditions. Nonetheless, the

results were surprising since the sample means for local fiber attitude and local consumption were towards the agree portion of the Likert 5-point scale. For hypothesis 3, marketing conditions were expected to influence responses for product attachment based on whether a memory scenario was presented. The results conveyed that marketing conditions made no significant difference.

One explanation for the study findings may be that consumers "decode" or interpret marketing messages differently and may only retain selected information (Lamb, Hair & McDaniel, 2013). Although the instructions at the beginning of the survey requested that respondents analyze the marketing condition carefully, it is unknown whether all participants read all of the content or just looked at the images briefly.

Additionally, respondents were primarily drawn from the fiber community social site *Ravelry.com*, a population that may have a higher preference to touch knitwear before purchasing compared to a typical customer. This alludes to a comment made by a NY fiber farmer regarding the difficulty selling "tactile" products online. Generally, a stronger emphasis is placed on selling fiber products directly to customers at festivals, during on farm visits, and through special events like those hosted by the Northern California Fibershed including symposiums, Galas, and Farmers Markets booths. This is supported by findings that 69% of NY fiber farmers communicate information about their fiber products through through direct conversations with customers, and 55% also use web channels. The Fibershed Marketplace that features artisanal fiber products from Northern California may provide further insight into advantages and disadvantages to online retail of fiber products.

Limitations

Presenting a photograph of the sweater may have biased the respondent's responses. Throughout the pilot studies, it was apparent that biases could be introduced if a person modeled the sweater, and if their face or hairstyle was shown. Respondents could easily confuse the "personality" of the sweater with the "personality" of the person wearing the sweater. To eliminate the bias that a model could have, the sweaters were photographed on a standard dress form. However, different colors of the sweaters—grey, ivory, light brown—may have skewed responses based on personal preference. The colors of sweaters were based on the quantity of yarns available at a specific farm on a specific date (May, July, September 2013).[25] Creating sweaters in a consistent color would have been ideal, but it was not possible based on the time frame.

Future consumer studies can involve a more realistic online setting with capabilities of rotating the product, viewing details, and enlarging the detailed text. Recording the screen as respondents view the marketing condition can provide greater insight into their perspective and opinions, especially if they speak out loud while viewing the marketing conditions. Other fiber marketing studies offered scenarios for respondents to imagine a fiber product with specific attributes (cost, country of origin, ethics labels), but no visual representation of the product (Peterson, Hustvedt & Chen, 2012; Sneedon, Soutar & Lee, 2014). This helped eliminate biases that could be associated with seeing the product. This might be a strategy to consider in the future.

[25] Needed approximately 800 yards of the different fiber types to complete each sweater.

CHAPTER 7

FUTURE OF U.S. FIBERSHEDS

Links with Fashion Cities

Links between Fibersheds and major fashion cities such as San Francisco, Los Angeles, and New York City can foster future growth and stability. San Francisco fosters the growth of sustainable fashion boutique designers because there is a niche market that values local entrepreneurship, sustainability, and creative one-of-a-kind designs (Spotswood, 2011). There is also a local culture of altering and repairing clothing that embraces long-term use of clothes that aligns with Slow Fashion principles (DuFault, 2013; Bennett, 2012). San Francisco's support of local design and entrepreneurship has nurtured the growth of the Fibershed project in the Bay Area, specifically in Mendocino County California.

New York State is unique because New York City is the leading fashion capital of the world (Thomas, 2014; Rantisi, 2006). Fashion entrepreneurs in NYC are striving to re-vitalize a local apparel industry as mentioned in Chapter 5. Emerging NY brands like *Farm2Fashion*, *Simply Natural Clothing*, and *Where* implement domestically sourced animal fibers into their clothing lines. The clothing company *Where* sourced wool from *Fatstock Farms* in Stuyvesant NY for accessories in Fall/Winter 2013, as seen in Figure 39. *Where* more recently partnered with fiber farmer Emmalaine Long from the *Orchard View Lincoln Longwools* fiber farm in Bergen NY for their Fall 2014 line (personal communication, June 10, 2014). *Where* anticipates future partnerships with more New York fiber farms to support their collective growth and stability.

Figure 39: Where line of local wool accessories Fall/Winter, 2013; Image Courtesy Peggy Sue Smiltnieks.

As partnerships emerge in between rural fiber communities and urban fashion cities, there is potential for greater visibility and momentum. The concept "fibershed" can help unite separate independent brands to create collective recognition in support of regional fiber farms and manufacturing. Although the NY "Fibershed" has not officially been established, this study identified the physical and social infrastructure to support its development on par with the Northern California Fibershed.

Fibershed Slow Fashion Sustainable Brand

The concept "Fibershed" not only provides opportunities for physical connectivity among farmers, mill owners, and artisans; it also acts as a sustainable brand that is slowly gaining recognition. Figures 9 through 11 in Chapter 4 are Fibershed Certified products, with fibers, dyes, and labor harvested within the 150-mile radius of the Northern California Fibershed (Figures 40 & 41). Fibershed certification represents support for the regional clothing, textiles economy that embodies a bio-regional community including people, animals, and land use (R. Burgess, personal communication). The certification reflects support for the holistic Slow Fashion paradigm with an emphasis on local.

Figure 40: Fibershed website logo, 2013. Image Courtesy Rebecca Burgess.

Figure 41: Fibershed Hang Tags, 2013. Image Courtesy Rebecca Burgess.

Fibershed Certification is positioning limited edition, locally produced clothes within the larger sustainable brand network and establishing benchmark standards with the Northern California Fibershed as a model. Existing sustainability benchmarking indexes include the HIGG index, Ethical Consumer UK, 3D P&L, and ZDHC; they evaluate environmental impacts, human rights, animal welfare, and financial sustainability (Ethical Fashion Forum, 2014). Self-assessments and brand rankings are geared to inform consumers, companies, buyers, and suppliers about strengths, weaknesses, and prospects for improvement. These indexes strive to stimulate collective efforts among the fashion industry to minimize negative environmental and social impacts.

Fibershed is similarly striving to raise awareness of the environmental and social contributions of independent brands of artisans and designers under the "Soil to Soil" model with Fibershed certification. The Northern California Fibershed is the leading model for other

Fibersheds that have developed throughout the world. Currently there are 20 Fibersheds as seen in Figure 42. Each Fibershed has developed its own structure and boundaries. For example, British Colombia's Sunshine Coast Fibershed sources within a 100-mile radius of Sechelt B.C., and the Upper Canada Fibershed sources within a 250-miles of Toronto (Fibershed, 2014). Each Fibershed is at different stages, which ranges from researching fiber farms-mills-artisans in the region to offering educational workshops.

Figure 42: Fibershed Affiliates who have developed their own Fibersheds, 2014. Image Courtesy Rebecca Burgess.

The strategy to replicate the Northern California Fibershed model is broadening the market access of Fibershed clothing and textiles. It is also stimulating the growth of the Slow Fashion paradigm domestically and globally. The organized social and physical infrastructure among fiber communities in both California and New York suggest long-term stability in their regions.

The next step is for Fibershed to expand and gain recognition as a sustainable brand. Although Weiss, Trevenen, and White (2014) emphasize that one standard sustainable industry logo, trademark, or rating system is essential to reduce consumer ambivalence, Fibershed is uniquely striving to create a sense of community with their value chain that highlights the significance of people, fiber animals, and the land. Fibershed is also creating collective visibility

for fiber farmers, independent designers/ artisans, and mill owners that operate on a regional scale. Fibershed is unifying these value chain members whose visibility would otherwise be fragmented.

As Fibersheds are developing, it is important to consider how they have the capacity to expand with current and future resources. Tasha Lewis and Loker (2010) identified three core strategies to develop a sustainable brand. The following discusses how Fibershed implements the three strategies. Lewis and Loker suggest that a sustainable brand should have a "sourcing conglomerate," which allows independent designers and companies to source textiles for re-use, and new natural materials that are bio-degradable. The Northern California Fibershed has inherently developed a "sourcing conglomerate" by identifying regional fiber farms, mills, and developing the Fibershed Marketplace for designers and consumers. The second strategy is to develop a "recycling brokerage" system that eliminates the creation of textile waste streams. Fibershed has developed a "recycling brokerage" system based on ecosystem services and a closed cycle. Fibershed's "Soil to Soil" model suggests a closed loop system where the clothing can become a "biological nutrient" that can feed into the land as compost; this continuously nurtures the well-being of fiber animals that graze on the pasture. The final strategy is the development of a "sustainable association," which Fibershed is developing with "Fibershed Affiliates" as shown in Figure 42. There are also less formal associations among artisans and farmers who have maintained long-standing relationships before the first Fibershed was established in 2011 (personal communication).

Along with the novelty of Fibershed being a sustainable brand with holistic environmental, social, and economic attributes, it may also appeal as a luxury brand. Currently, Fibershed products are predominately hand-made and limited in supply. Consumers may be

willing to pay a higher price based on the artisanship, authenticity, social, and regional appeal (Joy et al., 2012). The collaboration among members of the fiber community in multiple communities domestically and globally suggests a momentum. The creation of a Slow Fashion, sustainable luxury brand has the potential to steer consumers towards more sustainable clothing behaviors and lifestyles (Joy et al., 2012; Lewis & Loker, 2010).

Fibershed as a sustainable brand would ideally use infrastructure within the region to sustain long-term economic development. Although custom-made artisan clothing may appeal as luxury products, the demand may exceed the supply based on the labor and resources available during a particular season. The *Mill Feasibility Study* by Bieg, Burgess, Kahn et al. (2014) proposed scaling up with a vertically integrated mill for faster production; however, high start up costs make it unfeasible. The fragmented mill infrastructure with micro-scale mills in Northern California, and knitwear factories in Southern California make it difficult to maintain a 150-mile radius Fibershed; and fully comply with the "sourcing conglomerate" strategy. This is also apparent in the New York "Fibershed" with fiber farm and mills throughout NYS, and knitwear factories in NYC. This is an issue several Fibersheds will encounter unless there are financial resources, or policies that promote the growth of regional clothing and textiles industries. Although it may take years or decades to develop regional Fibershed infrastructure, fiber farmers can make use of supportive professional networks including the *American Sheep Industry*, *Alpaca Breeders Association*, and *Mohair Council of America*. Fiber farmers can also seek information from educational infrastructure that supports their professional and economic development goals.

Role of Cooperative Extension

Land-grant universities in the United States were developed to support agricultural advancement; extension was established to expand mission goals in teaching, research, and outreach efforts in regional communities. Though land-grant universities and extension was originally intended to address needs of agricultural communities, it has expanded to serve broader community needs. The cooperative extension system currently facilitates community empowerment through educational programming in agriculture, health, 4-H education, community development, and natural resource management (Franz & Townson, 2008).

The establishment of land grant institutions expanded educational access to the middle class, and sought to address the needs of rural, agricultural communities. In 1862, approximately 50% of the U.S. population lived on farms and 60% worked on them (Earl et al., 1996). The *Morill Act of 1862* granted land to every state and territory in the U.S. to develop a state land grant college. Fifty-nine universities were established, including three within the University of California system, and six in U.S. territories. Most universities were public, but a few were private like Cornell University and Massachusetts Institute of Technology. In 1890, the second *Morill Act* provided federal funds for land-grant universities, and encouraged the development and establishment of Historically Black Colleges and Universities (HBCUs). It provided access to higher education for African-Americans after the civil war. Seventeen HBCUs were established primarily in the South in 1890; 16 public universities and Tuskegee University. Land-grant status was extended to 29 Tribal Colleges in 1994 (Birgart, 1997). The *Hatch Act of 1887* provided federal funds for agricultural experiment research stations, and *Smith-Lever Act of 1914* promoted extension of university teaching and research in rural communities to provide

demonstrations to farmers. These legislations led land-grant universities to include teaching, research, and extension in their mission.

In alignment with land-grant and cooperative extension goals of facilitating solutions for local concerns, cooperative extension offices have provided outreach and educational services for sheep and wool farmers. Between 2003 and 2005, the "Cooperative Extension Textile Arts" project of Diné College, a tribal college in Arizona, improved capacities for cultural continuity, self-reliance and economic development among Diné wool producers and artisans with value-added wool products (Huenemann, 2003). The Diné Land Grant office currently facilitates "Herd Health Management" workshops for farmers with sheep, horses, cattle, and also helps host the annual "Sheep is Life" celebration (Diné College, 2014).

In New York, cooperative extension has also supported fiber farmers. Lisa Ferguson from the *Laughing Goat Fiber Farm* in Ithaca NY, gained deeper insight about farm entrepreneurship by taking a 4-part "Introduction to Farming" course offered by *Cornell Cooperative Extension* in 2008. Farmers gave first-hand accounts of experiences starting their farm business, and indicated that it could take up to seven years to reach financial stability with a farm (Roth, 2010). Additionally, the *Cornell Cooperative Extension of Broome County* hosted a "Marketing All Grades" fiber workshop in April 2013. Ann Merriwether, an alpaca farmer, shared her expertise and experiences with attendees. The Broome county office also promoted an "Open Farm Weekend" in May 2014 that included 10 farms, one which was Merriwether's *Nyala Alpaca Farm* in Vestal NY.

Cooperative extension programs throughout the U.S. are making continuous efforts to support sheep and wool farming. The *University of Maine Cooperative Extension* partnered with the *Maine Sheep Breeders Association* to provide a 30-month "Emerging Maine Sheep

Entrepreneurs" educational project for interested entrepreneurs (UMaine, 2014). The *Lincoln University Cooperative Extension* in Missouri offered a "Sheep, Goat and Value-Added Fiber Program" that provided insight about adding value to diverse fibers including wool, mohair, angora, llama, and alpaca fibers (LincolnU, 2009).

To address the issue of limited professional sheep shearers in the U.S., some cooperative extension offices offer "Sheep Shearing Schools." The *University of California Cooperative Extension* in Mendocino hosts a "Sheep Shearing School" and provides hands-on shearing guidance, as well as opportunities to receive certification as a beginning, intermediate, advanced, or professional shearer (UCCE, 2014). By 2006, 126 participants received certification and gained the autonomy to shear their own flock, small flocks, commercial flocks, or become elite shearers in international competitions; 81 were certified as "beginners," 23 as "intermediate," 18 as "advanced," and 4 as "professional" in 2006. Income for advanced and professional shearers averaged $10,000 if they sheared sheep for 3-months in 2006. The impact in California has been that certified shearers produce less "second cuts," which are shorter hairs that cannot be processed in mill machinery. Additional "Sheep Shearing Schools" are offered by Cornell University, Montana State University Extension, South Dakota State University Extension, and University of Tennessee Extension to name a few (MSU, SDSU, UT, 2014).

With these educational and professional development services for sheep and wool farmers, cooperative extension is aiding in the re-organization of the fiber industry as part of the "U.S. Fiber Farm Cycle." The long-term stability and widespread availability of cooperative extension services offers fiber farmers continued support and prospects for future development. Facilitation of knowledge promotes a sense of autonomy and self-reliance that can help fiber farmers. Although cooperative extension existed long before the Fibershed concept developed, it

has steered a sense of community and collective action that supports the social and physical fiber infrastructure in the 21st century.

Financial Assistance

Government support can encourage the development of more Fibersheds and the growth of the Fibershed brand. Previously, fiber farmers and mill owners have received grants from the USDA "Sustainable Agriculture Research and Education" program (Gibson, 2010; Jacobson, 2001). To date, there have been two funded proposals for the development of U.S. Fibersheds, specifically in Martha's Vineyard, and Southeast Minnesota (Gilbert & Toomey, 2013; Mueller, Boucher & Smith, 2014). The funding supports a range of goals. For Martha's Vineyard it assists with the development of their "Fibershed" website and advertising campaign to raise awareness of their work.[26] In Southeast Minnesota, funding supports "open-field" days where the public can learn from fiber farmers on-site, and the development of educational fiber farm tours.[27] This suggests a significance to the development of fiber farms as part of diversified agriculture in the U.S., and a momentum to develop visibility for new Fibersheds. However, only a small proportion of these Fibershed projects are likely to receive grants. Governmental policies in support of the emerging U.S. Slow Fashion model can help solidify its existence, especially as an alternative to the Fast Fashion mainstream industry.

[26] SARE Northeast Grant 2013 of $6,987, Project # FNE13-778
[27] SARE North Central Grant 2014 of $19,800, Project # FNC14-965

CHAPTER 8

CONCLUSIONS

Under the Slow Fashion paradigm, fibers are considered beyond their "raw material" form as attention is drawn towards the symbiotic interactions between farmers, animals, and the land. The "Soil to Soil" model provides a guide for the ideal value chain embodied by Fibershed certification. Fibersheds will not only contribute to the development of regional clothing and textile economies; they can also contribute to ecosystem services as delineated in the "Soil to Soil" model. By including fiber animals as part of the "ecological" component, Fibershed reflects a commitment to ecological health since it can affect the well-being of the animals that are at the core of the value chain as they provide the "raw materials" for clothing. Adding the sentimental value by highlighting the persona of fiber animals can contribute to the development of Manzini's "Consumption to Care" cultural shift philosophy with Fibershed clothes.

Several apparel brands suggest the emotional appeal of fiber animals including *Eileen Fisher, Smartwool,* and *Icebreaker*. This reflects apparel industry interest in this unique value chain. Fibershed further differentiates itself by focusing on garnering collective visibility for local agricultural communities. In New York, independent brands such as *Where, Farm2Fashion, Simply Natural Clothing* reflect emerging momentum for bio-regional NY clothing and textiles.

This study indicates that NY has the physical and social infrastructure to support several regional Fibersheds. This includes over 210 diverse NY fiber farms, and 23 mills that add value to fibers. Fiber farmers and mill owners optimistically welcome the public to expand awareness of their work, and the agricultural clothing and textile economy in NY. Additionally, collective networking through NY fiber festivals and fiber associations provides empowerment that

strengthens the fiber community though economic earnings are relatively low. Marketing fiber products is a major challenge that can limit revenues earned, especially since the customer base is currently a community that prefers to see and touch products before purchasing. Findings from the Consumer Survey reflect the difficulty with marketing knitwear online and influencing product evaluation. The development of a New York Fibershed or several Fibersheds with affiliation to the larger Fibershed network, can help build brand identity especially with an online Fibershed Marketplace that can help expand the customer base beyond the fiber community. Additionally, the establishment of official NY Fibersheds can shed light on the social, cultural, and ecological contributions fiber farmers are making in their rural, urban, and "in-between" spaces. New York clothing and textile economies are not just limited to New York City.

More broadly, the adoption of the Fibershed model in different geographic regions exemplifies the potential growth of a Fibershed sustainable luxury brand that embodies the Slow Fashion paradigm. Since hand-made, custom Fibershed clothing have higher price points, and may not be able to meet consumer demand, there will be a need to develop Fibershed ready-to-wear clothing for a larger consumer market (Bieg, Burgess, Kahn et al., 2014). The presence of fashion cities in both New York and California provide hope for viable relationships between fiber farmers-mills-and the fashion industry.[28] Symbiotic efforts to nurture a local clothing and textiles economy for self-sufficiency and reliance aligns with Slow Fashion principles and can aid the continuum of the "U.S. Fiber Farm Cycle" towards clothing and textiles regional entrepreneurship throughout the 21st century.

[28] Additional U.S. fashion hubs include Miami FL; Columbus OH; Nashville TN; Portland OR; Seattle WA; Boston MA (Florida & Johnson, 2012)

Future Research

This research provides a starting point to explore the agricultural fiber resources in New York State that support the development of a Fibershed in the future. A database of the New York fiber farms, fiber processing mills, and knitting mills will be created through the Cornell University Geospatial Information Repository (CUGIR). This can provide future researchers with an accessible inventory of the New York fiber farms and mills.[29] Future research can also involve the analysis of New York wool, alpaca, mohair, and cashmere fibers to determine its quality based on fiber diameter, quantity based on weight of useable amounts, and quantity by color. This information can be helpful for interested fashion industry partners who want to know the quality and quantity of New York State fibers. Additionally, knowledge about the symbiotic relationships between NY fiber farmers, mill owners, and artisans can provide a deeper understanding of the social networks that contribute to the larger Slow Fashion movement, especially with attention to people and the significance of fiber animals.

If a NY Fibershed is established, a strong online presence and the development of a Fibershed Marketplace can provide a starting point to collectively market locally produced fiber products under a unified brand identity—Fibershed. Future consumer research can involve an analysis of the economic impact of the Fibershed Marketplace, and a comparison with direct in-person sales at festivals or during farm tours. Longitudinal studies regarding attachment to Fibershed clothing can provide insight about use and sentimental value that can reflect Manzini's "Consumption to Care" philosophy. A longitudinal study of existing NY fiber farm-fashion industry partnerships can provide insight about the benefits and challenges of these collaborations for future reference.

[29] This can save researchers time in Internet searches of NY fiber farm and mill addresses.

APPENDIX A: New York Fiber Farm Consent Form

Project Title: Evaluating the Slow Fashion Supply Chain: Local animals, fibers, and knitwear

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Please read the following information about the study carefully:

What the study is about

This study aims to gain insight about the local apparel supply chain through knowledge about New York fiber farms. Information regarding quantity of fiber animals (sheep, goats, alpaca to name a few), fiber products produced, and marketing strategies would be significant for designers interested in partnering with local farms.

What we will ask you to do
You will be asked to answer an online survey.

Risks and discomforts

We do not anticipate any risks from participating in this research.

Benefits

This study focuses on New York fiber farms and can inspire future research about fiber farms in other states. Information from this study may benefit the apparel industry in the future by showing that local, renewable fiber resources are widely available. This may lead the apparel industry to support local agriculture to a greater extent.

Payment for participation
There is no payment for participation in this study.

Privacy/Confidentiality

We anticipate that your participation in this survey presents no greater risk than everyday use of the Internet. Your information will remain confidential in the Cornell online survey that will only be accessed by the lead researcher. Survey responses will be coded to assure confidentiality of your responses.

Please note that email communication is neither private nor secure. Though we are taking precautions to protect your privacy, you should be aware that information sent through e-mail could be read by a third party.

Taking part is voluntary
Your participation is voluntary, you may refuse to participate before the study begins, discontinue at any time, or skip any questions/procedures that may make you feel uncomfortable.

Everything in this study is voluntary and you are not required to complete all tasks.

If you have questions

Helen Trejo, a Cornell graduate student is the main researcher. Please ask any questions you have now. If you have questions later, you may contact **Helen Trejo** at **hxt2@cornell.edu**. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) for Human Participants at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint online at www.hotline.cornell.edu or by calling toll free at 1-866-293-3077. Ethics point is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

This consent form will be kept by the researcher for at least five years beyond the end of the study.

Please indicate whether you would like to participate in this study after reading the consent form:

__ I agree to participate in this study.
__ I disagree, I do not want to participate in this study.

APPENDIX B: New York Fiber Farm Survey

Where is your farm located (city, state)?

What is the name of your farm?

Please indicate how many fiber animals you derive fibers from (estimate if needed):

	Amount on Farm
Sheep (please indicate breed)	___
Sheep (please indicate breed if it differs from the breed listed above)	___
Sheep (please indicate breed if it differs from the breed listed above)	___
Angora Goat	___
Cashmere Goat	___
Pygora Goat	___
Alpaca	___
Vicuna	___
Llama	___
Angora Rabbit	___
Other _____	___
Total:	

Generally, I try to increase my animal's fiber quality by…

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
Blending the fiber with another fiber	O	O	O	O	O
Feeding supplemental nutrients to my animals	O	O	O	O	O
Controlling breeding	O	O	O	O	O
Controlling the diet of my animals	O	O	O	O	O
Monitoring my animals to ensure that they do not experience physical or mental distress	O	O	O	O	O
Other _____	O	O	O	O	O

What fiber products do you sell?
__Roving for hand spinning
__Yarn for knitting/ crochet
__Clothing/ accessories (please specify) _____
__Household textiles (blankets, rugs)
__All of the above
__Other: _____

Do you communicate information about your animal fibers to market your yarns?
__Yes
__No

How do you communicate the information to customers?
__Informative labels
__Direct conversation (festivals, farm tours)
__Internet (website, etsy, blog, facebook, twitter)
__Other: _____

Please provide an example of the information you communicate about your fiber animals to market the fibers:

Please describe your process of turning animal fibers into yarns (include each processing step, name of mill, different locations for processing):

Do your fiber products have any certification (sustainable, predator-friendly, etc.)?
__Yes
__No

What type of certification?

What are the benefits of having a fiber farm?

What are the challenges of having a fiber farm?

I work on the farm…
__Full time
__Part time

Please indicate your years of experience with the fiber animals on your farm:
__1 to 5
__6 to 10
__11 to 15
__over 20

How many people work on your farm?

Please indicate your gender:
__Male
__Female

Please indicate the income earned from your fiber farm:
__Less than $10,000
__$10,000 to $24,999
__$25,000 to $49,999
__$50,000 to $74,999
__$75,000 and over

Thank you for your participation!

APPENDIX C: New York Fiber Farm Listing

Fiber Farm	Amount fiber animals	Total Amount
Aleatory Alpaca Farm	Alpacas: 14	14
Alpacas of Breezy Hill Ranch	Alpacas: 31	31
AREA Cria-tions Alpaca Farm	Alpacas: 25	25
Bel Canto Farm	Alpacas: 20	20
Bentwood Alpacas	Alpacas: 52	52
Blind Buck Farm	Sheep: 2 Goats: 10	12
Blue Spoon Farm	Goats: 50	50
Brooklyn Alpacas	Alpacas: 25	25
Buckwheat Bridge Angoras	Sheep: 200 Goats: 75	275
Castle Tower Alpaca	Alpacas: 25	25
Creek Edge Alpacas	Alpacas: 16	16
Dashing Star Farm	Sheep: 35	35
Diggity Downs	Sheep: 14	14
Eagle Hollow Farm	Alpacas: 24 Llama: 1	25
8 Hands Farm	Sheep: 57	57
Elfenwood Alpacas	Alpacas: 9	9
Elihu Farm	Sheep: 105	105
Ellis Hollow Farm	Sheep: 64 Alpacas: 4	68
Ensign Brook Farm	Sheep: 31	31
Fingerlakes Woolen Mill	Sheep: 22	22
Frisky Lamb Farm	Sheep: 40	40
Gansvoort Farm	Sheep: 55	55
Golden Oak Farm	Alpacas: 20	20
Gore Mountain Farm	Alpacas: 19	19
Hartshorn Ridge Farm	Sheep: 30	30
Haven Hill Farm	Alpacas: 13	13
Heavenly Sunset Farm	Alpacas: 40	40
Hermit Pond Farm	Goats: 60	60
High Peaks Alpacas	Alpacas: 20	20
Hillcrest Farm	Alpacas: 33 Llamas: 2	35
Hollow Road Farm	Sheep: 100	100
Johanneshof Farm	Sheep: 48	48
Kentswold Farm	Sheep: 15	15
Laughing Goat Fiber Farm	Sheep: 2 Goats: 78 Alpacas: 2	82

Lazy Acre Alpacas	Alpacas: 88	88
Little Creek Farm	Alpacas: 270	270
Long Island Livestock Company	Sheep: 4 Goats: 4 Alpacas: 4 Llamas: 20 Rabbits: 2	34
Long Meadow Farm	Sheep: 32	32
Merry Hill Farm	Alpacas: 30	30
Moments in Time Creations Farm	Sheep: 32	32
Nistock Farms	Sheep: 145	145
Northwoods Alpaca	Alpacas: 25	25
Nyala Farm Alpacas	Sheep: 21 Alpacas: 90 Rabbits: 3	114
Orchard View Farm	Sheep: 30	30
Pastel Paca at LadySong Farm	Alpacas: 47 Llama: 1	48
Petersburgh Manor Farm	Sheep: 12	12
Sheepy Valley Farm	Sheep: 7	7
Shepherd's Falls Farm	Sheep: 90	90
Simple Pleasures	Sheep: 13 Goats: 2	15
Spirit Wind Farm	Alpacas: 40	40
Spot Hollow Farm	Sheep: 108	108
Springside Farm	Sheep: 115 Goats: 4 Alpacas: 40 Llama: 1 Rabbit: 1	161
Stillmeadow Finnsheep	Sheep: 20	20
St. Mary's on-the-hill Cashmere	Goats: 30	30
Troll Bridge Farm	Goats: 15 Rabbits: 2	17
Twist of Fate Family Farm	Sheep: 11 Alpacas: 4 Llama: 1 Rabbits: 15	31
Tybrush Mountain Alpaca Farm	Alpacas: 12	12
Windsong Farm	Sheep: 65	65
Windy Meadows Farm	Alpacas: 29	29
NA	Alpacas: 6 Llamas: 4	10
NA	Alpacas: 21	21
NA	Sheep: 16	22

	Goats: 2 Rabbits: 4	
NA	Sheeps: 25 Goats: 4 Alpacas: 2 Rabbits: 20	51
NA	Alpacas: 72 Llama: 1	73
		Total
	Sheep:	1,566
	Alpacas:	1,222
	Goats:	334
	Rabbits:	47
	Llamas:	31
*Based on 67 NY fiber farm responses June to August 2013		

APPENDIX D: New York Fiber Processing Mills & Fiber Pools

Mills and Fiber Pools	Location	Frequency
A+ Fiber Mill	Jordan NY	2
Acorn Works Fiber Processing	Churchville NY	2
Autumn Mist Fiber Mill	Prattsburgh NY	4
Bartlett Yarns	Harmony ME	2
Battenkill Fiber and Carding Mill	Greenwich NY	5
DayLyn Mill (Royal Fiber Spinnery)	Caldwell ID	1
Dreamweaver Creations	Earlville NY	2
East Valley Alpacas Fiber Mill (Fiber Factory)	Alfred Station NY	3
Finger Lakes Sheep Producers Coop (Wool Pool)	Burdett NY	1
Fingerlakes Woolen Mill	Genoa NY	5
Green Mountain Spinnery	Putney VT	1
Liberty Ridge Farm and Gardens	Verona NY	1
Lochs Fiber Mill	Springville PA	2
Marathon Alpacas Fiber Mill	Marathon NY	1
McAuslands Woolen Mill	Prince Edward Island Canada	1
McClellan's Woolen Mill	Frankenmuth MI	1
Morning Star Fiber	Apple Creek OH	1
New England Alpaca Fiber Pool	Fall River MA	6
Sallies Fen Fibers	Barrington NH	2
Salt City Yarn & Fiber Mill	Syracuse NY	6
Self processing step/s		37
Shepherd's Mill	Phillipsburg KS	1
Southern Adirondack Fiber Producers Coop (Wool Pool)	Greenwich NY	1
Still River Mill	Eastford CT	5
Stonehedge Fiber Mill	Jordan MI	5
Zeilinger's Wool Mill	Frankenmuth MI	5

APPENDIX E: New York Knitting Mills

Knitting Mill	Location
A & K Knitting Mill	Farmingdale NY
Alpha Knitting Mills	Brooklyn NY
Hill Knitting Mill	Richmond Hill NY
Marvin Knitting Mills	College Point NY
New Broadway Knitting Mills	North Tonawanda NY
Seneca Knitting Mills	Seneca Falls NY
STOLL Knitting	New York NY
T & R Knitting Mills	Ridgewood NY
Venus Knitting Mills	New York NY

APPENDIX F: NY Fiber Farm Sample Interview Questions

What inspired you to raise sheep for fibers and meat? Why not another fiber animal?

On your website, you indicate blends of sheep family member fibers:
"Both mother and lamb fleece combined to create a soft and lustrous yarn"
"Two sisters, one white, the other grey. Were chosen for this unique, yet strong combination. (My favorite.)"

How do you think this influences consumer interest? Have customers commented on these descriptions?

On your website, you indicate how the 3 breeds of sheep (Romney, Merino-crosses, and Cheviot) add diversity to the fleece your farm provides. What are the distinctive characteristics of each fiber type?

How do you think the variation in sheep add value to people's experience when you are giving tours?

How do you decide names for the fiber animals? (based on yearly theme?)

Why do you think it is important to individualize your fiber animals with names instead of numbers?

On the survey, you indicated that your fiber products are organic. Is it based on how the sheep are raised (eat organic hay and bedding), or on how the fibers are processed?

How do you think the availability of Battenkill Fibers Mill has influenced fiber processing in New York? How has it contributed to the culture of fiber crafts? How has it contributed to the local agriculture and the economy?

Why do you think it is important to communicate information about the heritage of fiber processing in the Greenwich area?

APPENDIX G: NY Fiber Farm Interview 1

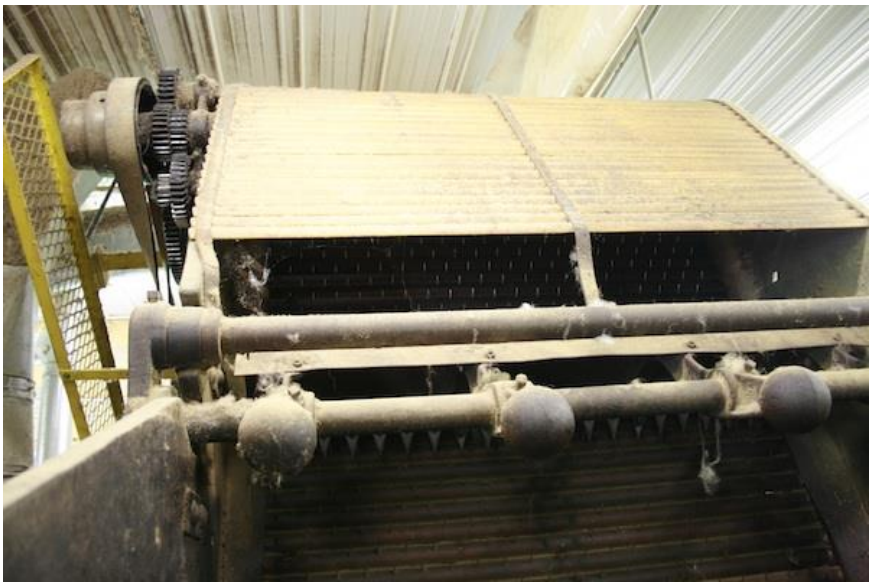
August 6, 2013

Several farmers process their fibers at the *Fingerlakes Woolen Mill* in Central New York. Suzanne and Jay also have a sheep farm with the rare breed of *Hog Island Sheep*.

Mill Tour

Fingerlakes Woolen Mill; Genoa, New York

Discussed washing wool in hot water to remove the lanolin. Got equipment from Pennsylvania/ MA when the textile industry was in the Northeast, before it moved to the south where the labor was cheaper.



Picking machinery to clean wool

J: Okay so now I put the clean wool back into this opener, so when I'm preparing it for washing, I just leave this belt still, it just falls down, here and I bag it up. This is raw fleece that's gone

through here and you can see that, you can kind of shake it apart. It is a little bit loose, you can also probably also feel the lanolin in it too, certainly smell it. So now that it's clean it drops down here rides on the conveyor belt, it's forced to travel between these corrugated rollers. What that does, it does nothing to a fiber, but if there's hay or vegetable matter in the wool, it forces it to bend so sharply it breaks. And you can see a lot of it reigns down the bottom falls out the bottom, so that's an additional cleaning step. So it passes through 2 sets of those corrugated rollers, it hits the spiked drum, it rides up and it's actually held back from just flying over the top by these rollers are going in opposition to it. So they tease it apart even more.

H: So that's the carding?

J: No, this is picking. So this opens it up more, yet eliminates if there's any matts if the wool was matted. It just stretches it out, it falls over the back, and it's sucked through this metal duct here into a fan. It goes through the fan, comes out of the fan in the metal pipe there, and then unfortunately, we need to reverse ourselves. It flies into this sort of room, comes out of the pipe, hits the ground, and it just keep circulating like this. The fan has a lot of extra air, what that does is it throws short fibers and dirt into the four corners of the room. This is actually from picking from cleaning that picker, this is now been picked, it's also a little trashy 'cause you can see the short fibers mixed in it. This you wouldn't want to card because that makes little balls in the carded fiber. This is typically what it looks like coming out. And you can see that there are some short fibers and vegetable matter, dirt in the corners. So from here we take it out, we bag it up in trash bags.

"Waste wool" that collects on the corners of the fan room

H: How full does the room get? (when the fibers are circulating)

J: Well if I put about 50 pounds of wool in there, it'll fill about half way up. But typically most of my orders are a fleece or a couple of fleeces, at which point it's down to here, maybe a foot worth.

H: Is this all wool from a local farm? (roving wool in a bag near machinery)

J: Um, yes she's over just east of Ithaca. Actually I think she works at Cornell. I don't remember first name, her last name is DeVilliers. Okay, so this is the feed of the carder. And you see it has the same type of spiked belt that was over on that opener, but now since the wool isn't really matted, it's just kind of loose and open, you just have a flat plate to knock down in case a big clump comes up, that just peels it backward so it falls in. And unlike the rake that's over there that is a fixed distance from the belt, on this one I can vary that distance back and forth. And what that does, that serves as a rough volume control for the amount of wool that's going over the top. So the history of carding, or fiber machinery in general is that they invented rotary carders about, oh 75 to 100 years before they had a mechanical way to spin wool. When the rotary carder was first invented, they still had rooms full of people using spinning wheels. So have you spun wool?

Pointing at scale balance that weighs wool

H: I've spun on a drop spindle.

J: Okay, so you know that when you spin on the drop spindle you draft that wool out to get the diameter or density that you want for your finished spinning. That's what wheel spinners do exactly the same thing. But once they had a mechanical spinning frame, there was no more kind of human feed in that, so they needed a way to make a consistent roving, something that was a constant density from start to finish. This was invented by an English minister, took time off from writing sermons to design textile machines. And what he did here it rides up that belt, falls over the top into this little bin, this bin is actually a scale. So it measures weight. So it would fall over the top into the scale until it tripped down, which that motion of tripping down throws out

the clutch that's adding more wool in. So the machine doesn't add any more when this little pusher plate reaches the back portion of the cycle, the bottom of this box springs open, drops the wool, it resets the box and the cycle starts over again, so now you have precisely weighed amounts of wool going in. So since your yarn is yards per pound you now are getting precisely equal amounts of weight. So you adjust this gate right here, so you fill this box somewhere in this cycle, it doesn't matter where since it'll throw the clutch out. You just need enough coming in that it'll pull it.

So on this machine, this unit right here is called a Breast Unit. The purpose of this and you can see it's doing its job to trap and chop hay and catch burrs. If you, in factories where somebody else is washing the wool, frequently there's some scouring mills that will scour the wool and then send clean wool to the mills. So all of that's already been done. So this unit is optional in my case, it's a really good thing it's here because there's a lot of trash in a lot of people's wool. So this acts to protect the carding cloth on the main carder. But it comes in through a set of feed rollers, is put on those back and forth between small, large, back on the drum, and you'll see that's happening on the carding cloth as well. And on the card you see that as you go up along the machine the wire diameter is getting smaller and it's getting closer together, which represents the fact, when it comes in here it's a completely random orientation. One lock could be going this way, another could be going that way, but as it goes through in a linear fashion, it's swinging around to more or less parallel and that's the process of carding.

Carder rollers that clean wool further

H: Do people usually skirt the fleeces before they send it to you?

J: Hopefully, and it's worth their while too because if they include trash and poop, I charge based on input weight, so if they send me sheep poop, then they're going to get charged for it. And they get a better job if the neck hair or leg hair is taken out anyway. The main good fleece is on the main body on the sheep. So on the card here it comes, there's 8 sets of these small, large roller pairs, comes over here and you can see that this one is pretty close together, fairly fine. Now we need a way to get it off the machine. So there's this roller here, this brushes, this is the only roller

that actually bares on another roller, all these other ones are separated by about 12 thousandths of an inch, very close, it's like 3 thicknesses of your hair, separated. This is the only roller that actually runs brushing against one. So it brushes against the wool that's down in here, it pulls it, it reaches under it and pulls it to the surface where it adheres to this roller, which is coming underneath, it rides up and now we need a way to get it off this roller, we took it off, brought it on here.

So this is a comb. You can see the little teeth there. It forces, that catches the fiber, it forces them to turn back on themselves which you see it did here. It rolls it up in a roll, those it does that 2 times, both when we start a job and when we finish a job. The roll in between is what the customers want. When we start it's very thin and it's not the full thickness of the weight we set there, but as the rollers get loaded and it becomes full strength, then it builds up in wads that big around. We reach in there and grab it, and feed that from the comb into these two crush rollers. These two smooth rollers.

Now the process carries on through there and they roll because it has both crimp of the fiber and also on a micro scale it has scales, that locks it together so the wool can support itself in that air gap across there. This machine doesn't really can't do exotics like alpaca and llama because that's much more hair-like and it, those don't really have the crimp that will hold them together. So they would just fall apart in between here, so to do llama and alpaca I have to do it with wool as a carrier in a blend. Now this machine made for more exotic fibers, there's two modifications, they put a tray between here so it's supported from the bottom and it can slide across and another way it's done they actually have a short conveyor belt that actually picks it up, it doesn't even have to slide on the tray, it's picked up and carried over. So now it comes through these crush rollers and again this is to crush hay, which on a micro scale of course is like a hollow cylinder. Here you mash it so much it squishes it and blows the sides out. So now it's like two flat plates and they'll just fall out. That's another cleaning step. So it comes through here, goes underneath this cylinder, another comb to make sure it falls off. It falls down on these two little conveyor belts, they bring it to the center, it drops through that hole. There's a short conveyor belt to bring it forward, it comes between these conveyor belts, up over and falls off over here. So at this point, this is what we take off for hand-spinners, this is carded roving.

Space in between machine; wool roving can easily be transferred, but slippery fibers require machinery adjustments

If we're going to make yarn, we start up this machine, which is another carding machine. It comes off here and now with this machine running, this carriage reciprocates back and forth across the bed, so I take this folded roving, I introduce it between these rollers on this bed and it lays it down on the table, back and forth, back and forth in like a blanket. But since their moving into the machine this way, it's a blanket here, another one, another one, and it's going in, the reason they turn it at right angles is because if this machine has a density difference from one side to the other, by turning it, say this side is right, by turning it this way, it comes in and you completely re-card it, you eliminate any density difference on this side. So and you can see that these rollers continue from where those left off. It's getting finer and finer because it's already mostly aligned it has to turn 90 degrees, but once that's done it's already been pre-carded, so it goes, this machine has 7 steps. Comes over here, same type of roller to pull it loose, a much bigger diameter roller to take it off now, but that's only to get the center height of the machine higher and now at this point, it comes off in a web and it comes into these leather belts and to this day they haven't made anything that works better than the first thing they started with about 200 years ago—leather, real cows.

Leather strips that help process roving batts into pencil roving

So it runs into there and it gets cut in this machine into 120 ½" strips, each one of those strips rides up here, comes over and by adjustment of these rollers, their rubbed off 30 strands at a time where it has to pass through one of these 4 sets of little conveyor belts, wide conveyor belts. What that does is that compresses the wool vertically, it mashes it vertically, these belts with this mechanism, the whole belt is actually moving side to side, that tends to squeeze it horizontally, so you have to go from a ½" wide very narrow strip to a strip that's been formed to about 1/8" in diameter and I have a piece over here.

Wool pencil roving ready to be spun into yarn

This is pencil roving, so if you pull this, you see that this is more or less parallel strands, but there's no spin to it, it's just fiber. So those are wrapped up, they come off the machine, they're wrapped off 30 strands at a time on these reels. When this reel is full, that's about 12 to 15

pounds per bar here, 15, since there's 30 of them, that's a ½ pound of each strand. So there's 4 reels being developed here at one time, that's your 120, so now it's on these reels, bring it over to the second machine, this is the spinning frame.

Drop this, you have to kind of imagine this machine should be one more of these bays longer, but when the owner brought it here, it wouldn't fit the room. So he had to drop one of these bays off in order to have enough space to get everything in. So that reel drops down on here, you can see that this corrugated cylinder is very close to looking just like that one, so the machine is symmetric at the center, so 15 strands go the far direction, 15 strands go this way.

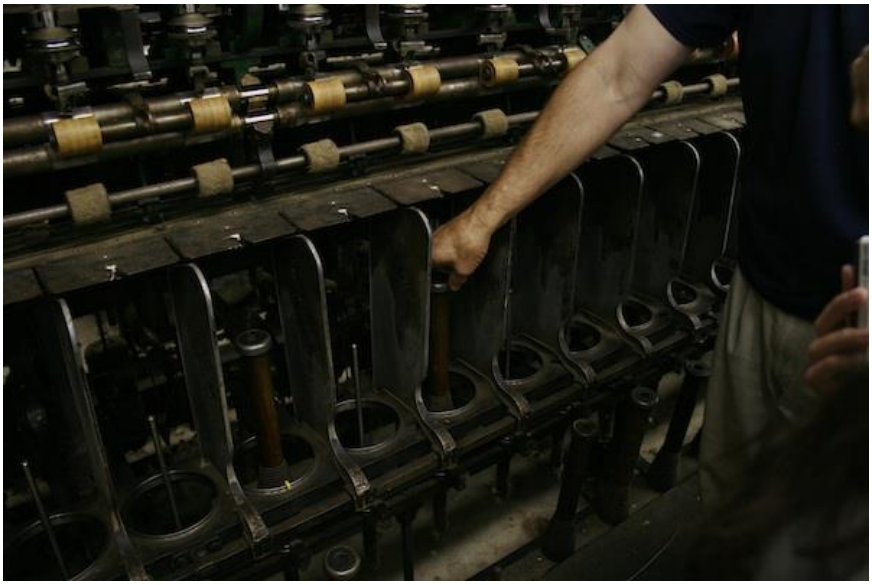
Inserted pencil roving into spinning machine as a sample

So we put the strand in, it passes under this, this is just an idler roller, it passes on this corrugated shaft, or ridge shaft. Comes down to this little head, and there's another ridge shaft that it's held on. Now from your spinning on the drop spinning, you draw that out, or draft the wool 'till it's the right diameter, or density. So what we do is this pencil roving, we measure that very accurately, we shoot for like a typical yarn that we make is 2400 yards as a single. What I do is I shoot for about 20% heavy, or 2000 yards per pound. That's set up way back there by adjusting the trip weight on that little bin that holds the wool, you can tune that in to get, and it's astoundingly consistent drop after drop. So I shoot for 2000, but let's just say it comes out, rather than my 20% heavy, it comes out 17% heavy. So there's a bunch of gears that you change in the front end of this machine, I can make the speed ratio between this shaft and this shaft, I can turn this 17% faster, what that does is it stretches out your roving cause it's getting pulled by this one 17% from here to here. As it passes this point, it's just the density I'm looking for, and since it's held from turning, I mean this can't spin, it has to come through just in a straight line, but it's being spun around this bobbin. That's what puts the twist in the yarn, and I can vary the speed

relationship between how fast it comes through here and how fast this is turning, that way I can determine how much twist I put in the yarn. If this is turning slowly relative to that, that yarn is much more open not spun tight. If this is turning quite a bit faster, this is wound up very very tightly.

H: Is that like woolen and worsted yarns?

J: Yes. So I have 2 controls over my wool here, I have the matted draft I do, and also the matted twist I put in. So at this point in a big wool mill, all of these operations, like the carding would have been entire buildings full of these machines, 10, 20, 50, 100 cards all working. Spinning would have been in multiple buildings, there would have been dozens and dozens of these spinning frames. And then the single ply which is the spun yarn on these bobbins would have gone to a finishing department where they would have said, "okay we just wound it on cones, and out the door it goes." Or it gets made into 2 or 3 ply wool yarn.



Bobbins where yarns are spun

So I don't have a separate building for finishing here, so I gotta be a little more creative. I have these weird looking frames which I drop down on the machine I can put 30 bobbins of these bobbins on the frame, the wool goes off the end of the bobbin, just pick those off, up there. And I introduce 2 or 3 strands through here into 1 head to ply it together. And you know from your spinning if you spin in this direction, you ply in the reverse rotation. What that does is it cancels the twist because the single ply yarn is unbalanced if you just hang it goes "wranngg" wraps up in little loops, if you wrap that in opposition to the twist, 2 strands together cancels the other, and it just hangs there freely, that's a balanced yarn. So 2 or 3 strands for 2 or 3 ply and now because you've established the density and the twist of this yarn, you change these gears back to no draft at all, it's just going the same speed on both, you're not trying to pull it because it's strong it's going to resist that. It comes together and is spun onto the spindle, but now it's turning backwards, I can set that up with the change in gears in the front. That turns it backwards so it plies, now I have a multi-plied yarn on these bobbins.

Frame for plying yarns from bobbins

So this is a skein winder it will take 8 bobbins here again we feed off the end. We can hook 8 ends on this wooden lattice reel. This is 2 yards in circumference and it has a counter here where I can set a mechanical, an electrical trip out on it, so by this time, I know how many yards per pound I want, so I can set the number of yards I want on these skeins. The machine runs until it actually counts backwards to zero and then shuts the machine off. So now I can take it off here and that's a skein. Skein multi-plied yarn.

Skein winder and frame for bobbins with plied yarns

H: How long does it usually take to go from washing to spinning the final skein?

J: Well if we really put our minds to it, just the 2 of us working, it will probably end up almost 2 weeks. Or 4-6 actually. Because the washing, we have a continuous water heater, so we don't

have to stop and wait for the water to heat, you can do 10 maybe 12 loads a day, that's getting up to 60-80 pounds. It's a day to wash. In the winter time it can be multiple days to dry. A day to pick, a day to card, and multiple, multiple days to spin because you have to make those single ply yarns first, then you set the machine up to ply then you make your multi-plies, then it'll take a day or so to finish.

H: So do you have a minimum order?

J: Minimum order for carding, I charge people a 4 pound minimum because it takes the exact amount of time to wash 8 pounds as it does to wash a ½ a pound, so I'm standing here for ½ pound at my normal charge, I'm losing money. It's costing me more to stand here than I'm making, so we try to put, with a 4 pound, you're pretty much down one small sheep, say a Shetland, in that neighborhood. Realistically on that carder, because it has to card over a 60" width if I get much less than 2 pounds coming into that, remember it has to make those little rollers, starting and finishing. The start one, I recycle once it's up to density and just take that into the input, it'll come through again. When the wool runs out, I have to cut it off and that amount of percentage, that waste wool that's done after I cut the normal density web, on a small order is way way bigger percentage than it is on a big, because it's the same weight coming off, but if it's, if I run 100 pounds through there and I get ½ pound off, 1½%, if I run a ½ pound, it's 30%.

H: Are you talking about the waste?

J: Yes, the waste wool. So obviously it's a way bigger percentage for somebody on a lighter carding, that's why if somebody's down in the 2 pound region, I really rather send them to a mill with actually smaller equipment because they would get more density, it would be better worth their while to get smaller amounts.

S: We have large equipment. So if you do down 2 pounds, and pay for 4 pounds, we do down to 2 pounds. We've even done under that, but we recommend that people do more. We want them to be happy with what they get out, it disappears into the carder, they're not going to be happy.

J: Yeah, and the scary thing is it's actually completely out of that feed by the time it ever starts. So it's somewhere in the machine and then you can't actually recycle that front wool because it's already fed it, it's gone, it's already in the roller some place, so it never really has a very small period of time that it's up to full density before it's running out. That's the reason we have that minimum.

H: So what do you do with the waste?

J: The waste I return to the.. here let me show you, this is a job that is waiting to be picked up. This is a carded white, so what I do when the machine runs off, I just bring all the.. there you can see how it's rolled up. This is the output whereas this I can find, so it comes off, it looks roughly like that. It's about 8-10" wide.

Showing finished wool roving

H: What kind of wool is this?

J: Let's see if she identifies the breed. No, she didn't. And you can see there are little bits of some vegetable matter, but there isn't much. This was pretty clean wool. So I don't know what the other mills do, but I believe we're one of the very few that return this (waste wool) to the customer.

H: Oh, is this the waste yarn?

J: Yes, this is what happens when you break that web and it runs off. 'Cause actually I don't really have a use for this and if you're careful with this, you can still actually spin it, or certainly felt it, or play around with it, use if for doll stuffing or whatever. People seem to like to get it back, and if not, I would have to pay to get rid of it, so it works for everybody. Any other questions?

H: This is a generally question, how do you think the availability of this mill has influenced fiber processing in New York?

J: Well, I think people are happier to have a mill in New York if for no other reason than they save on shipping costs, because that can be, we've had orders where the actually processing cost was less than what it costs to give it back to them, which is a killer. You're paying as much money or more to ship it back to somebody as you paid to have it done.

H: Do you feel like the ratio of New York orders compared to orders out-of-state is larger? Or is it even?

J: No, there's more in New York state because I do a couple of New York state wool shows and pick up more there—the Rhinebeck (fiber festival), Hemlock is another one, that's actually coming up here fairly soon, there's another one by Buffalo.

H: So do you have educational workshops at you mill or is it more your presence at the fiber festivals…

J: We advertise on our website that we're open for tours and we do get home schoolers and just groups of people who would like to come and see how it's done. So we do. And I think that's important to get the news out, and for some people they've never ever seen any machinery on an industrial scale, they're completely

H: Yeah, I've never seen it at this scale.

J: Yeah, it doesn't happen anymore. It's pretty neat to be able to show people what it actually takes to make something like this happen. I think people understand, you probably have hand-cards and understand how to prepare it on a very small scale, but you never see it on the larger scale and to have that kind of accessibility, that is kind of neat.

H: How has having the mill contributed to the local agriculture and the economy in Genoa?

J: Oh, I probably don't make much of an input because this is dairy country around here, so that's what the Ag money is in here. This, I'm probably helping to keep a service alive for local people and there are quite a few locals that bring their wool here, and even I'm amazed that people will drive hours to bring it to the mill, which if you look at what gas costs versus UPS may be expensive, so is a tank of gas these days. But a lot of people like to come and just talk and walk around and see the machines that works for me. I don't mind.

H: And you already explained what makes this mill different from large scale mills.

J: Right.

Farm Tour

H: I have some questions about your sheep…I was wondering why you specifically chose to raise Hog Island Sheep.

J: Well, 2 reasons, they were small. We didn't want to start off with some giant Colombia that weighed 350 pounds. Since we didn't know what we were doing, we thought it would be better to do something we had a better chance at controlling. And also, the main thing was the conservation aspect because there's so few of those, we thought we could help conserve them.

Hog Island Sheep Farm; Genoa, NY

H: Was the flock that you started off with already in New York?

J: No, we brought them up to New York.

H: They're from Virginia?

J: Yes, they were abandoned on a barrier island in the Atlantic on the eastern shore of Virginia. And then the Nature Conservancy bought the island in the '70s and decided that the sheep weren't indigenous. Yes that's true on a grand scale, but actually being out there many many many generations I would say they had some claim to being on the island. And they basically just gave them to whoever wanted them. Took them into the eastern shore and were just giving them away to farmers. The first conservation group that got them was actually Williamsburg, colonial Williamsburg because they figured that that sheep would have been more indicative of what a sheep would have been back in the colonial days before man really kept heavily heavily breeding the sheep to get to what worked for men. These sheep had been bred backwards for what worked for sheep. Obviously the strong ones survived, the weak ones died, ewes with lambing problems would have died, so they kind of selected for strong easy caring, no one was making pasture for them, so their more like goats in what they'll eat, than sheep. We just cut down some brush out there, put them on a foundation, they just laid ways to it.

H: Do you know if they're fiber or meat animals?

J: Well, they it appears that they were a mixture of both because occasionally we get sheep. One of our sheep will have actually pretty nice wool, so that probably had a background, the genetics are expressing for the fiber animal. But most of them are medium-wool, they're this grade or potentially coarser. So that was probably a meat animal. So there were both genetics out there apparently.

H: So do you raise them for both their fiber and meat?

J: Well, we can, because of the rarity aspect, we can sell pretty much every ounce of the fiber we process. But we do get animals that have to be culled for reasons, so we do sell them for meat. People have bought lambs and raise them.

H: When did you begin your flock?

J: We brought them up in 2004, so they've been here for 9 years.

H: How big is it now?

J: 22 with the babies this year. Would you like to see them?

H: Yes, I would love to see them.

J: You can see we have one little lamb, he's a bottle baby and Suzanne will get some bottles. It's his feeding time anyways.

H: Do you know if there's other Hog Island sheep in New York?

J: Oh, yeah, we've sold multiple pairs over in Groton, there's some further upstate, two of these were sold to a woman out by Owego. This was 8 feet tall and you couldn't see a foot into it. They went in there Sunday, so you can see they really.

Previously 8 foot tall brush; grazed by sheep

H: What was it used for?

J: It was just completely overgrown with brush. And you can see what they've done here, just chewed it all up. The tall stuff that they can't get to, we cut off and just throw the branches down and they eat all of that. You don't want to touch this (fence), this is electrified.

H: Is this to protect them from being attacked by coyotes?

J: Yes, it's to keep them in, and it's to keep the predators out, we do get a lot of coyotes around here, but we've never … and frankly they work as good lawn mowers, I'll have them mow the lawn and save on fuel. We let the grass grow and then we just enclose an area and let them out here. We wanted them to get that brush so it worked great to…

H: Do you keep them in the barn in the Winter?

J: No, they stay in the fields in their run-ins (shed). We were wondering about that actually, we got our sheep from Mt. Vernon who holds most of the genetics for them. They work as, oh here comes my buddy Butch (lamb), come on Butch! Hey Butch. He wants his bottle. I'm his mom, weirdly enough.

H: When was he born, this year?

J: Yes. Just a little over 2 months old, he's circling me, he knows the milk is here some place.

H: How do you choose the names for them?

J: Suzanne names them, she claims the name just comes to her. The only name that I came up with we had a really hard birth and one of the ewes, that in the wild, I'm sure she would have died. And our vet was pulling so hard on the lamb, we thought she was going to pull it in half, so I named it "Stretch."

H: Awww. When do you shear them?

J: Well, we used to be relatively late shearing (feeds bottle to lamb Butch)

S: Hey Selena (ewe) want a cookie? (feeds alfalfa cookie)

J: So the way they go about 10% of them stay dark and about 10… whoa… 10% of them are born without horns. Here Butch… Butch, there you go…

Bottle feeding baby sheep ram Butch

H: Do they drink milk from their mom too?

J: No, actually she rejected him (Butch). So they're all of the Hog Island are born dark like this, but if there's any white on them at all, they'll turn white like her, complete color change. I mean even ones that appear totally black if there's the slightest bit of white, they'll become white. All of them, they all have dark faces and legs. Okay, you're done (Butch finished milk).

Butch will turn white when he becomes an adult because he has a few white spots

White Hog Island Sheep with white fleece, dark face and legs

H: So is the first cut always the finest and then it gets coarser?

J: Yeah, and then it coarsens up a little. She's about 5.

H: How long do their fibers usually grow?

J: It'll get, they're staple is about oh, 3- 3 ½" some less, but about 3 ½"…ha haha getting a little more than you bargained for.. he's looking for alfalfa cubes. A couple of them of them are real food hogs. Come on Butch. Watch your feet because there's fresh poop out here.

H: Do you rotate them?

J: Rotate the pasture?

H: Yeah.

J: Yes, this one is divided into 2, the back path, there's that part over there. This is the dark one, but you see she's getting whiter as she ages, that one there is a "no horn." But he'll turn white. This pure black one, he's a "no horn black" and he'll remain black.

Black Hog Island lamb without horns

H: Okay, is it because he doesn't have horns?

J: No, no because you'll see, let's see if he's out here. There's one white one here with no horns. These are 2 goat babies here. Is Audrey in there? (shed) See the white one over there in the corner?

H: Yeah

J: She's the white one, no horn. And we're kind of wimps, we give them fans in their run-ins. So they stay in there because it's a little cooler, shady, draws the flies away.

Hog Island Sheep keeping cool in shed

H: How old do they usually get?

J: Our oldest one was 9 when she died.

S: Yes, I think she was about 9. But it's hard to tell with sheep because many people butcher them, or cull them. It's hard to get a reading, like goats, how old is an old goat? Unless you keep them as pets, you don't know how long…it's not food Maggie…. She's a milk goat, that's what her job is. She's very used to being handled.

H: Do you also take them to the fiber festivals?

J: No, no we don't. Mt. Vernon brings usually 2 or 3 to Maryland Sheep and Wool. There's actually some biosecurity issues with taking sheep to shows where they can meet up with other sheep, really to do it right, you have to quarantine them for a month after. I don't know, it would be nice to get them out there more, but that's kind of tough.

H: Is that your guard dog?

J: Yeah, she's an English shepherd so she, ha! When she isn't acting like a total idiot, she rolling in poop, she will help us move the sheep, she isn't a true herding dog like a Border Collie but we use her, she will help us… Lizzie, Lizzie (dog)! Stay out here.

S: They (sheep) don't want to come out, she thinks they belong to her.

J: She just wades in there and makes them all run out.

S: That's our retired goat.

H: What type of goats are those.

S: They're mixed breed, Maggie here is Alpine-Sanin and Susie is Alpine and Toggenburg. She's pretty old, she's at least 10, maybe older because we got her as an adult. So she's right now, she's standing on the milking stand, so she just sticks her head over to see what we're doing. But I thought we were going to lose here last Winter but she made it through. And so Maggie, those are Maggie's twins. And the boy has been wethered, and he's going to a family that want him as a pet. The girl will stay on our farm for milking.

Twin dairy goats

H: Do they also produce fibers?

S: Not this breed, you could have… the older goat there does have a down fiber. Cashmere is the down from any goat, that's the certain micron count, so I've never measured it, but she has that fine down. Can brush it out, I generally don't because we're too busy in the Spring doing everything else. But that breed, it must come from the Toggenburg, but this breed, they just don't get more hair and they don't get down. The babies were bred to a Nubian, the father was a Nubian over in Cortland. So he was a show animal, we are hoping that the girl will give good milk. She ended up looking a lot like her mom, but with horns. As far as milking, this breed has a lot of variety. So I did manage to milk one of these a couple years ago. And she just, the one that was over here playing with us, so you can do it, but some of them have larger udders than others, if I wanted to do that, I could breed towards the largest udders and be able to milk them, generally they're medium size, medium wool and they make enough milk for their babies.

H: Do you breed them for their fibers?

S: No, this is, we work with the ALBC American Livestock Breeds Conservancy, and the idea is to keep the character of the sheep when it was in the wild. So you could take them and breed them for fiber quality, or color, or whatever, but the idea in this case is to keep the heritage and the genetic diversity. There's only about 200 of them left in the world, and right now we have 22 here. Some of them are young males and they'll have to leave the farm. We'll keep one wethered as a companion for an adult intact ram. The others will go either to fiber people or to people who want a lawn mowing pet, or they can go for meat. So once they get a little bigger, we'll figure out…

H: Usually when they have babies, do they have twins or do they just have one?

S: They have twins, occasionally we have triplets and when they're young, they'll often just have one the first time. People feel like when they were on the island, they only had one baby because they had less food, but now, given the care and the lush grass on farms, they're able to have 2. They're not identical twins, so it's 2 different eggs. So it's a matter of, I guess somehow they're bodies are able to realize that they can carry 2 babies. We've only had 3 twice and once the mother raised it, and the second time the third baby was much smaller and it was born dead, so.. But they have raised triplets. We've only in the 8 years we've had the sheep had 2 orphaned babies in that time. One was a first time mom and she didn't know what to do, but she's been a good mom since then. And this year, it's that little one that we're feeding milk, he was nursing fine, and then, it's that lamb, it's not the mother because the mother would chase him around trying to get him to nurse, but he stopped nursing. We don't know, we figure he's got a problem of some kind so he definitely won't be sold for breeding. If someone wants him as a pet, he's very friendly.

H: Do you usually breed them so that they have their babies in Spring?

S: Right, we do. We're not trying to get the Easter Market, we're a small farm. If you breed early enough for full sized lambs in Easter, you're having your lambs in December and January. It's harder on us and it's harder on them. So we typically try to have lambs in March or April when the weather has turned a little. This year we had a young ram and he was slower, so we ended up

with lambs into May, which is late. We try to get lambs in between the really bad weather and the bad flies, for the summer. In this area, especially we have a lot of agriculture dairies and stuff so there could be quite a lot of flies. That becomes a health issue when things get messy at birth if there's any complications where there's blood or stuff exposed, you have a lot more worries when you have flies.

H: Well, thank you, I really enjoyed this visit. Do you have any yarns?

S: We do, Jay can show you. We don't have any Hog Island yarns, we have some Hog Island fiber for hand-spinning, we have a few yarns, mostly we have carded fiber now for sale and I'm not even sure how much you have. Because the summer, we usually do other people's work, we're about to get back into making our own products for the Fall shows, we do several shows in the Fall and the Maryland fall in the Spring.

H: Do you show the fleeces there?

S: No, at the show, Jay takes in wool for processing, we sell product we have. We'll advertise the sheep, we could show the fleeces we just haven't done that before. It's a matter of how much time and energy we have. He told you that generally we don't show the sheep for biosecurity reasons. We should get around to doing it because they're a rare breed, but we just haven't. It's hard to do everything when you're 2 people.

H: Yeah, it's a lot of work.

S: This sheep are great, under that tree where you see a little bit of cement, that was completely overgrown foundation. So they like to eat brush. So in 2 days it's gone and now we'll just mow down all those sticks and it'll be clear. It would've taken me a lot of work to clean that. So we put them out on different areas like that back here behind the barn, we'll be able to put them. It's good for them because they get to graze the grass, I don't have to do all the work.

H: So is this all your land?

S: We have about 150 acres, so this is… the farm is organic, certified organic, it's being farmed by an organic farmer, that's a dairy. So right now these 3 fields are soybean. And then we have the woods where we have the maple syrup and some lumber and firewood. On the other side is clover this year. There's fields on the other side of the trees, it goes to route 34. And then that's clover. We don't certify the animals organic even though we feed them organic.

H: Is it a really long process to certify them organic?

S: Well for land it takes about 3 years where you don't use any chemicals, animals, I guess you get 1 chance at transitioning, and then after that you can only buy organic animals, or have them brought in. Isn't that the current rule?

J: Yeah…

S: In this case, since most of them don't go to feed, it leaves it a little more open, so we don't have to pay for certification and we don't tell people that they are certified.

J: There's also some animal health concerns with that too. A truly organic animal, you can't use any antibiotics on and we value these enough that, we try to get as close to, but if someone has an infection, that's the most intelligent option for its care, we want to do that. We're trying to preserve that.

S: And since people aren't going to eat them, if we use an antibiotic we know that it's not going to be consumed. And when we use medicines, if we have to, we have a vet, she does identify that the medicine is appropriate for the illness. It's not like people taking antibiotics for a cold or giving them just antibiotics. The chickens don't get antibiotics, or none of them. It's only if it's prescribed by the vet. And by not being certified organic it means we don't have issues with vaccinations like rabies or TB or anything or tetanus. But if we were raising meat animals we would certify those because then you're offering people a product and they know exactly what they're getting.

(Going to look at fibers available)

H: So are they resilient to the cold weather?

J: Yeah, Mt. Vernon was a little concerned when we first brought them up here, they thought they might have problems with it, but we haven't. No frostbite or anything. It's more of an issue for us that we might not feel like out there at 7 in the morning to give them some sweet feed. Of course in New York the big thing that becomes an issue is water supply that you can thaw so they can drink.

H: In the winter, there's no grass, do you give them hay, or grains.

J: Yeah, hay. We give them just a tiny tiny bit of hay that probably amounts to a teaspoon, I mean 2 tablespoons per sheep just so they all come running out in the morning. We see all of them, we get them all in one place in one time.

This is a mixture of the hog island dark, so it is a medium. And then this is some other dark I would assume this is a little finer. So what I do is I try and buy local wool from first the people who are closest to us, and in New York State primarily and then I put that back out as a New York product. There's also, we buy this is from a guy down by, Whitney Point, we buy a full amount of wool and then we dye it. This is my "mystery wool." After that run off really stops, it'll keep going maybe half an ounce or so, but if you do tons a year you get pounds of that too. So these, this is just whatever rolls off the machine and I sell this basically for craft wool. So any given one of these can have llama, alpaca, mohair, the hog island, whatever, I don't try to, other than doing it by color, I don't try to separate it. This is finer, this is the wool that I made the yarn from, this is the yarn that we had done.

H: Is it from the Hog Island?

J: No, this is wool, the wool merchant was actually from Boston and the wool was from Texas and New Mexico. Apparently you get finer wool if the sheep are actually stressed for nutrition.

H: Yes, I've heard that.

J: Because they can't put their excess energy into making lots of fiber, they need it for themselves, wool is... it goes to a finer state. I think that's a very narrow bridge to walk over. Otherwise, the animal is going to suffer, it isn't worth killing an animal to get fine fleece. So because the brush and the forage is kind of sparse in Texas and New Mexico, wool tends to be finer, at least in the United States.

H: So do you process a lot of Angora?

J: Probably couple hundred pounds a year, there's people with Angora goats around, and they ship it. And also this year we hadn't had many much Angora rabbit, but then all of a sudden we've had 3 or 4 customers show up with rabbit fur.

H: Are you able to process the angora with the…

J: with wool.

H: Oh okay, because I heard you can't actually process angora with the machinery, just with hand-spinning, but I'm not sure.

J: The goat or the rabbit.

H: The Angora rabbit.

J: Um, I'm not sure about that. I'm not certain about that because certainly they used to, I believe. And this product here, the previous owner had a customer from South Africa, which is the largest mohair producer in the world. They had, this is 78% mohair 22% wool.

H: Wow

J: They had a whole color palette done for them and we only have 4 colors left. But this is pretty nice stuff and we tried to get in contact with these people, and I don't know if they went out of busy or don't answer their mail.

H: When did they put that order in?

J: Probably the '90s, late '90s. We bought the farm and the mill in 2001. Those are my products.

H: Can I have one of these? (Jacob sheep roving)

Follow up questions:

Sheep Farm:

What fiber end-products do you think the Hog Island sheep fibers are most suitable for? (Outerwear, home textiles, fiber crafts?)

As most of the fiber would be classed as medium, it would be best for outerwear, or other uses not next to more sensitive skin.

Mill:

Can you explain where the equipment came from/history again (I didn't record the first few minutes of the tour)

The equipment were from New England textile mills shut down by the movement of US textile industry South in the 50's and 60's. There is some evidence that they were from mills in Massachusetts. Oldest unit is the opener from 1925, carder has parts from 1932 and 1935 and the spinning frame is 1946.

Are the short fibers that go into the corners of the fan room considered waste fibers?
The short fibers and dirt in the corners of the blow box are waste and are thrown away

Can you estimate the amount of small, medium, and large orders you get in a year? (I'm not sure what the break down would be between small-medium-large)
From yearly totals we process between 2000 and 4000 lb annually, probably 50% are single fleece orders,30%from 10 to 50 lb orders and 20 % large orders(>10 fleeces or say 50 lb)

How many orders does your mill typically get in a year?
Around 100 to 120 orders per year

Do you process yarns for knitwear designers that create their own patterns and want specific yarns?
We have in the past, but not lately

Are yarns for major textile/ apparel companies processed in your mill?
No

How do you think the availability of your mill has contributed to the local textile/ apparel industry?
Hard for me to judge, since I rarely see finished products, but several customers do sell their yarn spun from our roving. Most of our business is hobbyist I think.

APPENDIX H: NY Fiber Farm Interview 2

August 16, 2013

AREA Cria-tions Alpaca Farm

H: I was wondering how many alpacas you have?

A: 24

H: And you started off with…

A: 3

H: Oh okay, and then you've been doing this since 2006?

A: Yes

H: And then I was reading on your website about the CSA, community supported agriculture…

A: Yes, we haven't gotten that going quite yet. Basically when we do have our fiber tour in April we do offer, we have on a sheet of paper where we do offer people to purchase the fleece before it's taken off of the animal. 'Cause a lot of times people want to specifically associate an animal with that project that they've made.

H: So would you have that available in the festival booths? In your booth at the festival?

A: Yes, I will have in the festival that we will be attending in October. I will have certain fleeces of certain animals in a package that they can purchase that whole fleece.

H: Are you planning on putting the picture and the name of the animal? Or just the fleece?

A: Usually we've done the fleece only because we've been short on time. But that is a good idea to put the picture with the name.

H: Do you also take any of the alpaca with you?

A: We used to, but it's so hard you have to have a certification from the vet, CVI to go off the property to go to the county and there's so many new parasites out that affect the alpacas. That the Washington county fair is going on this coming week and I don't know, we just don't want to mix because the barn we're usually in is one of the open barns that have all of the sheep's and cows and all of that. We don't really want to mix, what parasite might already be there 'cause it's not vacant long enough to have died.

H: Oh okay. Do you go to any farmer's markets?

A: No we have not yet done that.

H: So do you process them in another state, the fibers?

A: No, we process them in New York, but it's in Western New York. So all of our yarn is "Pride of New York" labeled yarn 'cause it's grown here, taken off here, and processed here.

H: So when you were starting to process the fibers did you always want it to be New York label, or did it matter the location where they were processed?

A: No, we've always done New York. We've always processed in New York, but we finally found a really good person in Western that does work with alpaca all the time, they have their own alpaca farm. So they know how to make it what it needs to be. And I think "Pride in New York" just makes it, that's one of our labels in New York State that just gives it that much more. So in the Fall, we should have 6 babies.

H: Oh! Aww. I was also reading on your page about "breeding up." So you breed them for their fiber quality?

A: Yes.

H: Did the first 3 that you started with… did you buy them based on their fiber quality?

A: Not necessarily did we really know too much about it at that point. We bought them based on you know, what the seller had told us. But I do have to say one of the females that we still have here that was from our 1st purchase, she has produced some really good animals. She has, she was an import from Peru and she has brought our level up, definitely.

H: How do you test the fiber quality?

A: We send it off, forget where the place is, it's "Yocom McColl." We send it off to a fiber testing lab, and they do microns on them.

H: Oh okay, do they test the diameter?

A: Yes.

H: Do you send a sample of every animal every year?

A: We send the sample of the ones that we feel are gonna be prime fleece. Some of them obviously after they've birthed so many times, they get coarser. You know from the hormones and all of that. So those animals, we know what they've done in the past, so don't really focus on what their fiber is right now.

H: Do you differentiate between the baby alpaca yarns versus the adult in your labeling?

A: Um, no, I do not.

H: Oh, so people just feel it?

A: Yep, for the most part whenever they come to the store (on farm) or to the festival, they'll put their hands in the bags and they'll just kind of "oh this one's so much nicer" before I even say what I think. And of course they know which ones the nicer one. (Went to answer a call)

H: Do you guys name them? (Daughters)

D: Yes.

H: What are their names?

D: We've gone alphabetically. So like the first couple we had are like just whatever because we didn't name them ourselves. But the one we started with was "Ariana" and we just went down and we're at "Onomatopoeia." We did "O" and now we're on "P."

H: Oh okay, so do you do it based on year, or just based on every…

D: If we have a cria tomorrow, it'll be "P," the letter will start with "P." It doesn't matter if it's a girl or a boy.

H: So do you both pick the names usually?

D: The whole family does a vote and everything.

H: Oh, that's really nice!

D: This was actually the one, the one next to my sister, was a sea-section baby. So she, her mom was over, way over due, so then we had, she went to Tufts University I think. And she was born there. Actually her mom is right there with her ears back, the lighter one.

H: Oh, I see, awww. Do you guys also go to the festivals?

D: Some of them yes, and then we do shows. So like there's shows in Massachusetts and Syracuse. We go to.. Vermont and different places. Yeah, we take them and all the ribbons and stuff. And they also have "agility"

H: What do you mean by "agility?"

D: Obstacle courses, there's some of them over there. We would take them over the coarse, it's not set up right now. There's competitions, there's costume courses, walk around in a circle, you have to write up a story for that and the judges will read your story while you walk around in a circle. So that's for younger kids, so (background noise)

H: Did you guys do that when you guys were younger?

D: E_ did, I didn't, I did it once. And then you do obstacles. They're really fun to work with.

H: Yeah, they're adorable.

D: You gotta be careful they will spit at you, like if you're really close to them and they're angry.

H: Is it usually after they eat, or anytime?

D: It all depends, like we have 1 of our 1st ones from Peru, she'll chew her cud all day long. And then for dinner time, she'll spit it out, she won't spit it at you, she'll just set it down on the ground. And it's huge. It's really weird. It's a ball of hay, she chews it forever. And then she spits it out. And then we only feed at night.

H: So do you have mostly female, or do you have male adults also?

D: We do have males also. All of our females are here and then the last pen inside that has animals in it, are all males. We have 3 males, and however many females. This is our latest baby, that one right there. We named her "Nevaeh" because she has a halo on her head, it's "heaven" backwards.

H: Aww

D: It suited her well since she was a C-section. Her and her mom almost lost their lives.

H: But her mom survived?

D: Yes, they both survived.

H: Do they usually have twins, or just single?

D: They can have twins, but mostly they only have one. If they have twins one of them will have something wrong, or pass away or something. Or usually if you have twins you don't want twins because they're not good quality, it'll be bad quality usually.

H: Oh. What's the oldest one that you guys have?

D: I'd say probably "Juvidah" she was our import from Peru, I think it's her. She's like 15 maybe I think. And these guys are 2-3.

H: So do you guys shear them 1 time per year or 2 times?

D: Once a year. And normally end of March, no, end of May into June. 'Cause you don't want to do it when it gets too hot because then their sweating, but then if you do it when it's too cold, then they're gonna be cold. So you want to do it right when it's warm. It all depends, normally

beginning of June when it starts to get really hot we have to turn the fans on 'cause it's like really really hot in there, in the barn.

H: Is it easy for them to get heat stressed?

D: I don't really know. You'd have to ask my mom about that.

H: Oh okay.

D: During the winter you know they're warm because when you handle one 'cause they have quite a lot of fiber, you stick your hand in it and it's like hot in there, so you know they're pretty warm. The babies when they get… when the babies first come, if they're winter babies, we have to put blankets on them because they get really really cold.

H: (to Andrea) I was asking if it's easy for them to get heat stressed

A: It is. In the summer when, especially depending on when they get shorn, so we didn't get ours shorn this year until May 31st. So if we have a lot of hot hot days between the time, we usually have to put on some sprinklers for them, or just shower them down. And even sometimes with them shorn if it's really hot and muggy, then the pregnant moms, you'll see them, their nostrils will flare more. So we'll spray them down too. Or we'll just put the sprinkler on and let them play with the sprinkler.

H: I was wondering if you process any fibers specifically for any apparel companies or designers?

A: No, I don't.

H: Is it more knitwear, I guess hobby knitters or crochers?

A: Yep. Unfortunately and the same goes with my friend (fiber artist) I was telling you about in Glen Falls that has all of the stuff that she does, unfortunately, we don't really know how to find those people. She does unbelievably gorgeous stuff, and she uses a lot of my batts and if we knew how to find them, we would probably do a mass email to them try to promote stuff to them. Sometimes it's just so hard, I just don't know how to find them.

H: Well that's the focus of my research, trying to get the word out there that there's these resources available and it's up to the designers to use them. I've seen companies that focus on producing clothes with alpaca fibers. (Simply Natural Clothing based in Clarence NY)

A: Oh, they do?

H: Yeah, but I'm not sure how many farms they work with, they don't give those details.

A: Okay, interesting.

H: I can send you the link.

A: Oh that would be great, thank you.

H: And they've shown in some New York Fashion shows as ethical.

A: Okay, nice. It's funny a lot of people don't realize the value of alpaca. They don't realize that it's warmer and its water wicking, and it's just a great property. They don't realize and if we can get that out there more, people then would start to realize and understand the expense of it let alone the value.

H: Yeah.

A: You know, everyone likes the wool because it keeps you warm, and wool's cheaper. And then you have the people who have the allergies to the wool. It's hyper allergenic, there's no lanolin, there should be nobody allergic to alpaca. That's wonderful.

H: So the fiber artist, what types of things does she make with the …

A: I was saying to my daughter that I wish I had a couple of her samples, she does everything. She does jackets to hats to scarves to wraps to I mean you name it, she does it. She does it all. She does beautiful work, I'll actually try to get some photos from her and send it to you.

H: Okay, yeah, that would be great.

A: And just like your stuff, I'm sure your stuff if one-of-a-kind, kind of thing. And hers is too. Once you've done it once, you can't always make the same exact thing.

H: Can he take some pictures of the alpaca?

A: Absolutely.

H: For the yarns I bought do you know from which alpaca it came from?

A: I don't know specifically, no, it's gonna be my "lights" it could be the one that's walking out there that was the mom that was sea-section. Um, or it could be there's another one, light one in here also. It could be out of her. My yarns I don't normally do specifically by animal, I used to. But the cost was too much money. 'Cause processing a 3 pound blanket costs so much more to process than it was to process 10 pounds together, and I didn't get. The reason is, because when I'm doing the processing, that you'll see at Battenkill. When I'm doing my processing, so a 3 pound gets processed and it goes through, it's not necessarily 3 pounds that I'm getting because it's getting carded and dehaired and all of that. So with that being said, my 3 pound might only come out to 1 pound. Or my 3 pound can be 1.5, it was costly me too much money to sell it to the customers, so that's why now I do it by color. My light fawns, so I'm getting a better product. And what I do is I ask to separate them if I have light fawns that are in the same Grade, they'll go in the same Grade, they don't get, I don't put high microns with low microns.

H: So by grade, you're talking about…

A: The microns.

H: So low to high.

A: Right, I wouldn't put high microns with low microns 'cause you're just not gonna get that nice feel. So what I would do is I would take my higher microns and I would mix that or I would use that as my seconds, and I would put those into batts of other sorts.

H: Okay, so the higher micron is the coarser.

A: Correct, higher microns are coarser. Yes.

H: Okay. And then what exactly is the Washington County Fiber Tour?

A: The Washington County Fiber Tour is every year in the last full weekend in April. Even if it's a holiday weekend, it's still on. And it is normally 15 to 20 farms, depending on what we have for that year, that join in and you go farm to farm. It's your own tour. So you go farm to farm to each farm and you just learn about their animals. You can see what products they have for sale. They have demos usually going of different things. So it's really nice.

H: Is it more local people?

A: No, we advertise the group itself, they advertise into Vermont, we advertise into Massachusetts, down into the Albany area. Into the Glens Falls area, so we are advertising to the locals as well, but we're also reaching out within like 100 miles.

H: Oh, okay. The taxi driver mentioned that you were in the paper? Is that part of it?

A: Well I think it is, yes, but I think also the paper she might be thinking of, there's some summer booklets out that are like things to do in the summer, kind of thing.

H: Oh, she got really excited.

A: Yeah, yeah.

H: So do you also do any collaborations with other fiber farmers?

A: We all are, it's an interesting group because we're all close, and even though we go to competition with each other at the shows. Once you leave that ring, it's all close-knit family. So yes, we all get along well, we all you know if one needs help with something else, we're always there to take care of each other, which is nice.

H: Okay. Do you know how the fiber farm has contributed to the local agriculture? Is it more fiber farms here, or is it more food?

A: Um, no Washington County itself has the highest I believe my husband heard at the town, one of the town meetings, that Washington County itself is the highest dairy farming industry. So no. As far as fiber industry, we haven't made any huge impact, you know. Again it's for people to realize that the alpacas are out there and the angoras are out there and the sheep are out there. So that's great. And that's what we need to have them know, that they're there. We'll always have the dairy farms.

H: Yeah, I guess when I was trying to look for different fiber farms, this was, Washington County was where I found the most concentration.

A: Yeah, we probably, I mean again, our tour involves sometimes 18 people, so that's 18 different farms, and actually the interesting part is the farms used to be pretty diversified before we got in it was pretty diversified where there was lots of sheep and angoras and this and that. And now sometimes people are saying things like "it's becoming an alpaca tour" because there's a lot of alpaca farms. You know, not that that's what we're trying to do, you know because not only is alpaca important, all the others are important as well. You know, so yes Washington County does have a high volume of fiber, but in respect to all the farms, we're nothing. Do you know what I mean… as far as volume? Yeah.

H: Oh okay… why did you chose alpaca specifically when you first started?

A: Well, we went to Washington County fair when my daughter was 5 and it was, we came home and we were eating dinner and she said "I want to show animals." And I said "well, I'm not sure what you're gonna show because Abby, can't be shown, our dog, and I'm not gonna get a rabbit, and you're not gonna show chickens, so I'm not sure what you're gonna show." And my husband said, "Well, we have this extra land down here, why don't we look at alpacas, you've liked alpacas in the past." And I said, "Well we could look at them." So that's how we ended up with alpaca.

H: So you already knew a lot about alpacas before you started?

A: Um, not necessarily did we know a lot. We had done some reading and we had done some research. And it was one of those things, we went to one of the local fairs and we saw them and my husband was like "I don't think so" and then years down the road, it became a reality. For the most part they're really easy to maintain and take care of which is nice. They have one community dung pile.

H: Oh yeah, I saw.

A: So that's nice, obviously the pile does get a little bigger as they step out. They have toenails so they need to be trimmed, they're not hooves, so you really can't get hurt, and if they were to kick... and they do kick, the pregnant ones, it's gonna feel like a punch kind of thing, but not like you're gonna break your leg. They're easy to maintain we grain them, we give them hay, we give

them water, and then they eat grass, so there's not, they're really not high maintenance animals. You know we do a herd health on them once a month and that's for the meningeal worm from the white tail deer. But other than that, they're pretty good to maintain and easy to take care of. Yeah. There's not ever really a lot of health issues. You know, they birth by themselves for the most part. I do, whenever I have my first time moms, I do try to have the women that was just here cleaning, I do have her check in on them and if one looks like it's in labor, she calls me when I'm at work and I come home just to make sure everything goes well because it's a first time mom. If it's a mom that's birthed before, I don't really get concerned, lot of times the womb will come down and she'll call me and say "hey we got one on the ground right now." I'll say "okay, I'll be home." For the most part I think sometimes us Americans really over-do the animal, you know what I mean, they (alpaca) birth all the time and grow by themselves, nobody's out there to help them or any of that so I think sometimes we're too cautious, but you know.

H: It's good to be cautious.
A: Yes, it is.

H: For the multi-colored ones (alpacas) do you use the fibers that are multi-colored, or do you put it in with the color that it matches more with?

A: Yes, I see what you're saying, so for her depending on what, when I go to the mill, I'll say to them, this is what she is, and then if they feel she's gonna make that yarn a benefit, sometimes they'll put her into that yarn and it'll just give it the different look. Or sometimes we'll just take that piece, that section out. I kind of leave it up to the mill because they know what they're doing, they have a store and they do really well. They sell us stuff, they knit, they crochet, they've worked with it, I just feel like they really know what they're doing, so I kind of leave it up to them if they feel that she needs to go completely in one section, then we'll do it, if you think the yarns gonna be a nice yarn this way, then we'll go with this. You know.

H: What is the name of the mill?

A: The mill is Autumn Mist Alpaca Farm
H: I think I contacted them too.

A: You probably did, they're very very nice people, they are out near the Fingerlakes, I'm trying to think of the name of the place, Prattsburg is where they're located and they're very good.

H: Do they primarily do exotic fibers, or any type, the full range?

A: They have, I think the most part, I'm not sure on that, I think mostly they do alpaca, but I do know that they have wool because they will put some wool in with it, or they'll put some silk or some bamboo so I do know that they have other fibers that they put in with the alpaca, I don't know if they have specifically processed a batch of sheep's wool, I'm not sure on that. But I know that they're really good. (to alpaca) What do you think??

H: Aw, so cute, giving you kisses! Aw, they're adorable.

APPENDIX I: AZ Fiber Farm Sample Interview Questions

In the survey from Summer you commented "I've grown up with my fiber animals since I was a child." You also mentioned that you use traditional techniques to process your fibers, can you expand on that?

Did you make your own clothing when you were growing up? If so, what types of clothes did you make?

Did other members of your community also grow up with fiber animals?

Why do you think it is important to have a fiber farm?

Why did you choose Churro sheep and Angora goats?

Has the fiber farm influenced modes of dress among members of your community?
(opportunities for spinning local fibers, weaving, making clothes)

Can people buy clothing (fiber products) on site, on your fiber farm? If so, where is it sold?

What types of clothes (fiber products) do you sell?

What fiber art techniques are used to create clothing (fiber products) from your animal's fibers?

Who buys the clothing (fiber products)? (self-use, members of the community, tourists)

What influences the style/ motifs of clothing (fiber products) created? (Navajo traditions, western culture?) How often do the styles change?

What is the price range for clothing (fiber products)?

Do you know of other Navajo shepherds? Do you interact with them? Is there a strong fiber farm community? Please explain.

How do you think this fiber farm community fosters a culture of dress among Navajo in your area, if it does at all?

Do you have educational workshops for people to learn how to spin, weave, or make clothing? Do you participate in the Navajo Lifeways Project, or the Sheep is Life Celebration?

Has the trend of people making their own clothing/ products influenced your work continued work on the fiber farm?

Has the idea of "sustainability" or "low carbon footprint" influenced your work?

APPENDIX J: AZ Fiber Farm Interview 1

Nov 12, 2013

H: Ok so the 1st question, in the survey from the summer that I sent to you, you commented that you grew up with fiber animals when you were a child and you also mentioned that you use traditional techniques to process your fibers. I was wondering if you can expand on that…

J: Well the current flock that I have right now originated from my paternal grandmother and of course it was passed on to her from her great grandmother, so she always said that the sheep we have today, the blood that runs through them, they're from our ancestors, from hundreds of years ago. So I take pride in my flock and they are fiber animals, we have angora goats and also Navajo Churro sheep. Each Spring about late April early May is when we shear our entire flock, using the traditional methods with the shearing scissors. As we're shearing them, we'll skirt them, meaning we separate the wool that has vegetable matter, we'll separate those and then we'll bag them either by age or by color. The next process is we'll put the wool out to dry in the sun, and the lanolin will dry up. And after that we'll shake it, which eliminates a lot of the lanolin dirt, then we wash the wool. Drum carders, or hand carders, and eventually we use our traditional lap spindle. And wool dyeing is usually the last process of our entire wool process.

H: Do you have Churro sheep that are different colors, other than white?

J: Yeah, we have a wide variety of colors. I would say at least 70% of our flock is white, but that's because we like to do a lot of our own wool dyeing, we like to use the white, but we do have a lot of different colors – greys, blacks, silvers, browns, beige.

H: Did you make your own clothing when you were growing up?

J: Not necessarily clothing, but a lot of the weaving that are done with the fiber geared more towards the women, the clothing they wore, is made out of wool. By the way, my grandmother wove rugs and then she eventually sold it to the traders. In return, to get money for her rugs, that would buy us clothing. But as far as clothing, for the girls, they would usually have their clothes made out of the fiber.

H: Oh okay. Is it more sweater wraps, or dresses?

J: Dresses.

H: Why do you think it's important to have a fiber farm?

J: I think it's important because it can carry on a legacy, a tradition that our ancestors brought down for hundreds of years. My grandmother's 95 years old right now, and she always told me "to hold on to the sheep as much as you can, don't let them go" and the last words that I heard from her was "I never lost sight of my sheep, I even herded sheep without my sheep, so take care of them as much as you can"

H: Oh, that's so sweet.

J: Yeah.

H: So are there a lot of fiber farms within your community?

J: Here and there, there's not as much as it used to be say 20 years ago, it's slowly disappearing, but I would say at least 3 in my area that are carrying on that tradition.

H: Are you in Hardrock or Tuba City?

J: I'm in Hardrock

H: And do the other fiber farms have Churro sheep, or is it also Churro and Angora goats.

J: Mainly just Churro, but there is at least one producer that raises Angora goats along with her Churro sheep.

H: Do you sell any fiber products from the fibers of your fiber animals?

J: Yeah, I do the horse saddle blankets, and I also do some braiding.

H: In the book "Shearing Spirit" there was an image of a sweater that a designer made, was that in collaboration with you?

J: Yeah, it is made out of Churro, and that sweater came from another, the pattern came from another Churro farm. The entire sweater was made out of Churro wool.

H: The pattern came from another Churro farm?

J: Yeah, producer.

H: Is it common to collaborate with other fiber artisans to create clothing?

J: Yes it is. That's how it was done a long time ago, people would exchange designs, patterns and what not. So yes

H: Do you have any additional photographs of clothing that's been produced with the wool in collaboration with the fiber artisans?

J: Yep, some of the other, like knitting, or for ceremonial purposes like stockings. And I'm not sure if I have pictures of that, but that was one of the things that were used for ceremonial purposes.

H: Can you talk more about the fiber art techniques that are used to create clothing from your wool? So you mentioned weaving and knitting, are there any other techniques?

J: Some of the other would be felting, in the old days they did felting for snow boots. That would be part of the layer underneath for snow boots. Felting. And scarves are some of the other things that were made.

H: Do you have images of the saddle blankets that you create?

J: Yes I do. You could also use felting in your saddle blankets for it to go into your original saddle blankets

H: Do you attend any fiber festivals?

J: Usually "Sheep is Life" and I did the "Maryland Sheep & Wool Festival" before. Some of the smaller festivals that are held in our area Taos Wool Festival, once in a while "Goats Springs Fiber Festival."

H: Oh, so do you take roving or yarn, knitted, your saddle blankets to the fiber festival?

J: Some of the end products- roving, a lot of vegetable dyed yarns also.

H: Do you have a store on your farm where you sell the fiber products also?

J: No we don't, people will come to my house, but I don't have a store. Usually people would call or email ahead of time, and if I have something they're looking for, I'll have it available when they come around.

H: Do you make different products from your wool fibers compared to the angora fibers?

J: Yeah, there's so many things you can do, like sheep ornaments for Christmas trees, or felted products, other things that you can do with the wool- coasters, pot holders.

H: Oh okay. How do you think your fiber farm fosters a local or traditional culture of dress? I guess among women since you mentioned that there's dresses made for women from the wool.

J: I think quite a bit, we get a lot of orders, around Spring when the girls graduate from high school, that's something that they want to wear for that special occasion, or if they're having a wedding, that's an important time people will come looking for wool or to weave that dress.

H: Do you make graduation dresses and wedding dresses?

J: Yes.

H: Do you also have images of those?

J: Yes, I should.

H: Can you also send me those images?

J: Sure.

H: Okay, thank you. Is it just for girls in the community, or is it also for the tourist market?

J: Mainly the local people. Once in a while you have someone from the outside, but it's pretty rare.

H: Do you have educational workshops on your farm? Like teaching people how to spin or weave?

J: Yeah, once in while, mainly in Winter, we'll have a Spin-off, where we'll meet every other Sunday and fiber artisans usually come around and we all teach each other different techniques. Occasionally I'll do public outreach, they tell me to come out, and I'll present them the importance of fiber and about the animals.

H: Oh okay. Has the idea of "sustainability" or "low carbon footprint" influenced any of your work?

J: I've looked into it, but a lot of the things I do is already based on that. As we live in an area where we don't have a lot of water or electricity, we find other ways to process your wool and what not. A lot of the stuff we do is already like that you know. The soap we use for the wool is found locally in one of the plants – things like that.

H: Have you heard of the Fibershed Project in Northern California. An artist began it, and her name is Rebecca Burgess and she saw that a lot of the paints that she was using, was releasing a lot of toxic chemicals into the water system. She wanted to find new ways of creating artwork and that led her to look into natural dyes. So she traveled all around the world to learn about different techniques that people are using to apply natural colorants to fibers. Part of her research was going to, I think she went to New Mexico, and she interviewed a Navajo weaver and natural dyer. She has writings about the Churro sheep and also using plants and vegetable matter to apply colorants to wool. And she basically started a Fibershed project in northern California where she's identifying different fiber farms and she's creating connections between the farmers and fiber artisans. It's a way that they're trying to raise awareness about the availability of the fibers and to create momentum to re-develop the textile industry. It started in 2011, and I'm also going to interview people who are working in Fibershed in Northern California.

J: Okay. The dyes that I use are vegetables, or the plants from the local area. And I have been doing research on acid dyes and the person that I learned how to do wool dyeing with the commercial dyes, has taught me a lot. You have to find the right amount of chemicals to use for your yarn to absorb all of it. The end product should be clear water that isn't harmful to the environment. That's what I've learned from her. So I think those are some of the ways we can protect our environment, is doing research. And once in a while there's chemical dyes, but you have to be careful as far as the environment goes.

H: Yeah, thank you for your time, those were all of my questions.

APPENDIX K: Fiber Artisan Sample Interview Questions

When did you learn about the Fibershed project?

Why did you decide to become an artisan partner of Fibershed?

Do you have a fiber farm? (fiber animals, cotton)

What types of clothing do you sell? What techniques and materials do you use? Can you describe the production process? (hand-made, machine, mills)

What inspires your design/ styles of clothes? (knitwear magazines, create own designs?)

What information do you communicate about your clothing?

What is the price range for your clothes?

Have you received feedback from customers? Do you know who buys your clothing? Is your clothes primarily sold in-person, or online through the Fibershed Marketplace (or another internet venue)?

Did you previously sell clothing made of animal fibers? How do you think the Fibershed project has supported your work with clothing, if at all?

How do you think you are contributing to the sustainable culture of dress in Northern California, if at all?

APPENDIX L: Fiber Artisan Designer 1

Nov 15, 2013

H: The first question is... when did you learn about the Fibershed project?

C: Oh goodness, I learned about the Fibershed project a number of years ago when I was looking into local, sustainable fabrics.

H: Was it during your senior year at UC Davis?

C: It was a couple years before I went to Davis. It started actually with Rebecca Burgess' year long project to only do local design and materials for her wardrobe. That peaked a lot of people's interests.

H: That's the soil to skin?

C: I think so, is that what she calls it, soil to skin?

H: Yeah. Why did you decide to become an artisan partner/ designer for Fibershed?

C: I decided to become an artisan partner…that sounds really professional…Since I've been following, I've been trying to find ways to join and support and become part of it because I really believe in really looking at where your materials come from and really being able to show consumers what's available in their backyard. Since I have the design experience, that's where I could be a part of it. That's the niche I guess.

H: What types of clothing do you make or sell?

C: So, I'm just getting started. I currently knit scarves with the knitting machine. I guess it's hand-knit, I feel like I have to explain the knit, I don't actually knit it by hand.

H: So is it the small machine that Rebecca had? (knitting machine)

C: Yeah, so I bought one and I've been using that. I guess I could say that I also do custom designed clothing with natural fibers and natural dyes and I just started working on local natural dye baths.

H: So what types of natural dyes do you use?

C: My favorite natural dyes are oak galls and iron.

H: Is it the one that made the purple?

C: Yeah!

H: I was remembering your samples! And I was looking at Rebecca Burgess' book, and I can't remember, is that one in there?

C: It's either in hers or it's in Sasha Duerr's. Or Becca in class was talking about it. It's in one of those. I haven't explored a lot... avocado dye is also really beautiful. I would say those are my favorites that I've used. A couple others that I can't think of right now….I'm just remembering all of the tests that we did. They all didn't really work out.

H: So for your collection I remember you dyed some of the yarns and there was a gradient when you knitted the final garment., the shirts that you made, are you still getting the gradient, or is it an even…

C: A variation, yeah. I don't try to make it a solid color, I like the variation, so that's a personal preference, but I think if you tried, you could do solid colors too without too much effort.

H: So you mentioned that the scarf that you have is alpaca and local wool. What materials are you using for your current collection for the Gala?

C: For the Gala, as part of the fashion show, I'm making a pair of pants with Sally Fox colored cotton, it's organic, it's really neat work over in Cape Valley, their cotton. And then natural, oak gall and iron dye.

H: What kind of naturally colored cotton are you using? What color is it?

C: It's a brown. For the project I'm overdyeing it (laughs).

H: Are you overdyeing it with the natural colors?

C: Yeah, so it's all resources from your backyard pretty much- the dye and then organic cotton and the fabric, because we don't really have mills in California, was woven or knit in North Carolina. And it's kind of a... what's a knit when it's kind smooth on one side and nubbly on the other.

H: With the pile on it? I don't know the name.

C: It's that one!

H: Is it chenille?

C: It's kind of like sweater material when the inside's kind of got that texture.

H: Did you take part in any of the process for the cotton that you got from Sally Fox?

C: I didn't. Somebody in the group had a roll of it that she was selling it to other members, other designers. But she (Sally Fox) does have weeding and picking days on her farm that are a lot of fun to go to, I would say.

H: That's also in Northern California, right, Cape Valley?

C: Yes, it's like an hour West.

H: So are you mostly doing knitting, or are you also doing felting?

C: no, I'm not doing felting, I'm just doing cut-and-sew and knitting.

H: Are you using the special machine to do the sewing for knits, since it stretches.

C: It's just a certain stitch, slight zig-zag, it allows the seams to stretch with the fabric, and then we have the booth space where I'm going to be selling some scarves and I'm still determining what fibers I'm gonna use for that.

H: So do you prefer to use cotton or animal fibers?

C: That's an interesting question…

H: Or both...either...

C: It depends on what I'm doing. For the scarves it's really nice to have the animal fibers because they're really warm, that's my goal for the scarves, is to make really soft warm wraps. But for cut-and-sew, cotton's really nice, it works really well. It's a fiber that works with you.

H: What inspires your designs, or the styles of clothes? Do you look at knitwear magazines or…do you just get self-inspired?

C: I think I look at knit magazines and try to forget everything I just looked at and then be self-inspired. Work with what I know how to do and then experiment.

H: Do you have a page on the Fibershed marketplace?

C: I don't think I have a page, there's a designer page, and I think I'm on the list of designers that are participating in the fashion show Gala.

H: Is there a short paragraph about your designs?

C: Yeah, me as a designer, I think that's what they were asking for.

H: Have you gotten the opportunity to talk about your scarves in writing, or is it direct conversation with people when they come and talk to you?
C: I haven't really.... I don't have much written about it, and when I have talked to people about the scarves, I've had the opportunity a couple of times to talk to a customer about it. Some people are really excited about local, natural resources, that's always more inspiring, it helps you keep going.

H: What's the price range for your scarves and you mentioned that it's going to be auctioned?

C: The pants?

H: Yeah. What do you think the price might be?

C: The value of the pants…

H: Yeah, how much time did it take to make it, and working with the fiber that's local.

C: Yeah, with local fiber you're gonna be paying for local labor, and then if you're also buying organic, you're paying for the time and effort to do organic. I believe it's worth it. But the price points will look a lot higher. The pants, they could be easily $200 pants.

H: What did you say was going to be the rest of the outfit?

C: A felted blouse that's kind of a lacy, it's a cotton, I think she's using wool and a little silk, a really thin felted piece, and a felted jacket. The woman who does the felted jackets does these really neat India Flint kind of prints. Really pretty.

H: Are they auctioning off by piece, or by outfit?

C: I think by piece. The scarves, I'm just working on them. The scarves that I'm doing right now are Peruvian alpaca.

H: Are they from California, or Peru.

C: So the yarn is from Peru, and I've been using that yarn because it's particularly soft. And so I know the price point for that, and I would say if I tried to find an equivalent in California it would be maybe $20 more.

H: Yeah, so the yarns I bought, each was $20-25, so it was $100 or more for the yarn itself.

C: Yeah, and I think the biggest thing with local is adjusting your perception of the value of something because we're used to materials and resources that are really destructive and lower priced. They're not really taking, they're taking advantage of people, and resources, and land in the process of getting the low price. They have turned a blind eye to that. If you're paying attention to all of this, if you're being responsible, clothes aren't cheap. Clothes, responsible clothes aren't cheap. So that'll be part of it, if you can see that and value that then… I don't know what I'm trying to say.

H: Yeah, I understand what you're saying, when I was talking to farmers in New York they were talking about how economically it's not really feasible to just devote your whole time as a profession to just raise alpaca and process fibers because people aren't gonna be willing to pay $20-25 just for one skein. They also have open farm days so people can come visit their farm,

and they learn more about the animals and the whole process that goes into it. In that way, people learn more about the true value of it.

C: And people recognize when they see that, they internalize what that price means, they can recognize everything that goes into it. People are usually more willing to when they realize.

H: Have you looked into going to fiber festivals, or in the future?

C: I think there is one in Dixon, the one we went to, the club.

H: Yeah.

C: That was really cool. I missed it this year. I don't know when…

H: In October…

C: Oh yeah, it's in October. It probably passed already. You mean as an artisan, or just to go?

H: Yeah, as an artisan? A lot of the famer's I talked to really depend on those (fiber festivals) because that's where they see other fiber farmers and other artisans who are interested in local or high value fibers. Those are the people who are willing to pay for what it costs.

C: Yeah, and then you have to have customers who are willing to pay the artisans, which I'm just getting started, so I don't know.

H: Yeah, you should definitely look into it. It's also a good way for them to network with each other. And they also offer classes that people can take, that's another way that you might be able to expand people's knowledge about your expertise, and make an income by just showing people what you do.

C: like teaching classes.

H: Yeah, they vary, some are for a few hours, and some are longer, there's a lot of different things that are happening, it's not just selling fiber. People having spinning competitions and spinning as much fiber as they could. I don't know how long they spin for, but you can also enter things you've made into competitions, so they have competitions for the most well-done hand-spun yarn to the best hand-knitted one, crochet, they have so many different things.

C: Nice. Yeah, I liked going to the fiber event and seeing, I saw everybody spinning and I saw some really nice naturally dyed yarn, roving. It was a lot of beautiful things out there.

H: Could you describe your customer base, or the people who have come to you and talked to you about your scarves?

C: What I've gathered so far is that my customer base is women who like high quality and natural fibers, and I work with softer colors, so interested in that. Actually some guys bought scarves for their wives, so I know that's in Nestwear.

H: Oh, is that in Davis?

C: Yeah, it's in Davis.

H: Oh cool!

C: So I did last year, and if I'm able to do it again…

H: Do they have it on sale right now?

C: No.

H: Oh ok, I was going to go take a picture of it on sale.

C: I have a picture from last year.

H: oh yeah, send it to me.

C: That was a lot of fun and that was my first exploration into knitting, textile design as a business, and that went really well.

H: Were you able to sell them online too?

C: No.

H: So it was just in store?

C: Just in store.

H: How big was that order?

C: I want to say 20 scarves and they sold really fast.

H: Oh, that's really good. Were they all similar tot hat color?

C: They were different kind of natural alpaca, from this kind of soft tawny to kind of what is that, caramel brown to the really dark brown and grey. It's really neat to see just natural fibers, just the natural colors of alpaca and being able to show off that. My goal is to just have a vehicle for people to enjoy the soft, natural alpaca.

H: What was the price point in the store?

C: $90

H: And did they mark it up for retail?

C: That was the retail.

H: Okay, how much was it for wholesale?

C: For me selling it to them, it was $60-65

H: Oh, the mark up was a lot.

C: No, for retail stores the mark up to 2.2-2.3 is reasonable. They were really doing me a favor, they liked the scarves and they wanted it in the store, and I kind of said I want to sell it for this much, and they said "well I think you can get this much, so let's just do that even though it's not a full mark-up."

H: Oh, that's really nice. That's good. Are you going to give them another batch to sell?

C: That's the plan. Scarves.

H: What other garments are you planning to have available?

C: I haven't really explored that, I'm not sure what's feasible right now.

H: Okay, and the last question is how do you think you're contributing to sustainable culture of dress in Northern California.

C: A lot. How am I contributing to the sustainable culture of dress in Northern California. Well I'm contributing to, I don't know. I'd like to say that I'm supporting local producers, but I haven't really done that very much yet, so I can say that I'm supporting well, local, or are you saying sustainable, local probably.

H: Either. I guess for you it might be more related to sustainable at this point, so you can talk about sustainable culture of dress right now.

C: Okay, I can speak to that. Designing with natural fibers with no toxic dyes, no dyes, and selling them in a retail space is connecting customers with natural fibers and …

H: Yeah, that's good.

APPENDIX M: Fiber Artisan Design 2

Nov 16, 2013

H: When did you learn about the Fibershed project?

M: Very early on Rebecca. I have a store in Point Reyes and I've been teaching classes, dyeing, natural dyeing. A farmer who is a friend of mine, we did it at her farm, we did natural dyes and commercial dyes, spinning, literally taking a project from the sheep all the way to a sweater. So we've been teaching that for probably 20 years. First time I truly met Rebecca was when she came to the store and said "You know I'm teaching a class in dyeing, can I put up a flyer?" And I said "sure," now there's some competition. But anyway I met her and then she has a friend who's a photographer who does all the photography for the Fibershed, are very close to her so via via, when she started Fibershed I said, "I want to be part of this."

H: Before 2011?

M: Way before that, it was at the very concept of it, when she first started it, and I forget when that is, but it was multiple years ago.

H: Thank you. Why did you decide to become an artisan partner, or designer with Fibershed?

M: Because I did this already, I've been doing this for a very long time and it was a natural fit and to me as a side—it is very exciting that young people are doing this. I mean I'm the older generation, I'm from the '60s when people made their own clothes. I kept on doing that, and so now there's this whole upswing of young people that are doing this, and that are serious about it. Taking it so much further that what we did, for us, the people in the '60s it was basically individuals that did it. So it was natural for me, a natural step, I should be part of this.

H: So you have a store where you offer the clothes?

M: I do, I run it as a co-op. It used to be a co-op, it was no longer financially valuable, so I took over, the members still being and they are still there. It was the agreement that I would keep it going as a co-op, which means, only local artists, mostly West Marin, there's one person from Napa, one person from San Francisco, but West Marin basically. It gives them an opportunity to sell their wear, their hand made wear, and for me I'm very productive, so for me it's an outlet to have my own work, and sell my own work. So it's a very tiny little store, but it works, it's perfect.

H: Did you make this (vest)?

M: I made it, I hand spun this and I hand spun this (points to the 2 different types of wool on vest). It's important, so the body of the vest is from a farm that's 15 minutes from here, Windrush farm and the sheep are a mixture of Corriedale-Finn. The curls are Wensleydale, a farm in Valley Ford, Valley Ford is a little bit further from here, maybe half an hour. I know the farmers, I go to the shearings and pick out the fleeces and then prep the fleeces myself, and that's

how it happens. So with carbon, there's nothing there. Everything comes from Valley Ford to Petaluma to my studio in Bellinas.

H: Do you use a drop spindle?

M: A spinning wheel, because drop spindle takes too long.

H: Yeah, and it's very uniform (the yarn).

M: It is. Oftentimes, I've been spinning forever and ever, I'm a quick spinner, I say myself. The hardest part is not to spin even, for me, it's to spin uneven so it looks hand-made. Because like this, you can probably buy this yarn, in stores, so the hardest part is to make it look hand-made.

H: You mentioned that the spinning process was different for both of the fibers?

M: Yes. When you spin this (body wool), I had it made into roving first. So there's a mill in Yolo, they take the fleeces, they wash and scour it, and process it until it becomes roving, and the roving, I spin it on the spinning wheel, and knit it. The curls don't, I take the raw fleece, I put it in my basket, and I was it, I scour it, and I spin it, the way the curls work, they're a little long, it's a long fleece, and so I pull the individual curls and line them up, and spin only the bottom parts, so the outside, the point of the curl is visible. So it's a very different way of prepping the wool and a different way of spinning it. And spinning this is hard, I teach spinning and it's, people have a hard time doing it.

H: And you also did this on a spinning wheel? (alpaca necklace)

M: Yeah. All on the spinning wheel.

H: Oh wow. Do you know how long it took?

M: It's hard to say, there are two curls on the skein to spin on this, and to spin you don't want to talk about the washing because it dries and it takes a lot of work to do that because you have to rinse and soak it and all of that. The actual spinning for the curls probably took maybe 2 hours, and spinning all of this is probably 3 hours. And then hand knit, and I'm a fast knitter. (vest)

H: So do you make one of each style?

M: One of each, I never duplicate. People ask me for patterns all the time, I don't work off of patterns and I've tried making patterns, and you know it's not complex, it just takes unbelieveable amount of time, and I'd rather be knitting than. So I usually, when I start, I cast on a certain amount and I go half way, and think "should I turn it upside down, sideways…" So whatever the mood strikes, that comes out.
H: Oh, that's really great. And it's the same thing with the (alpaca) necklace?

M: This necklace, this is existing cotton thread that I plied, and this are inserts, and then again, it's totally different process (points at her necklace). You cut the roving, the roving comes in

strips and you manipulate the threads in such a way that you insert in certain distances you insert the roving. So it's a thing that many people don't know how to do.

H: Yeah, I'm really excited it to pair it with this for the exhibit.

M: Yeah, not many people spin like this, you have to have spun for a long time. They're always small amounts because it piles up on your spinning wheel, so you have a little yardage in the bobbin itself. After a while it's very frustrating, so you want to stop and do something else.

H: Do you also do felting or crochet?

M: Crochet I do a lot because many of the vest do require crochet in the edges or whatever, sometimes whole crochet hats and things like that. I do relatively little felting, I should do more, but you know I'm always running out of time. So I basically prefer knitting over felting, so that's what I choose. There's some fantastic felters in there.

H: Oh yea, the hats, they're so beautiful.

M: Yes, I know.

H: What information do you communicate to people, either directly or through hang tags?

M: The tags, but less so. At my little store, except for events like this, where I sell my work, and all the members, the members of the co-operative are also spinners and knitters. They know the process, and so we communicate and we teach. For me it's extremely important for people to know how to knit, less so how to spin, but if they're interested at all, I will teach them. And every Tuesday between 1 and 3, there's a knit clinic, and my store's tiny so we don't advertise it. But anyone can come in with any questions about knitting or spinning, and I'll teach them, many of them, Elie for example, and Marnie, I taught them how to spin and now they have their own animals. So it's very nice to see that. I've reached the age where it feels good to pass things on and to make sure that people know how to knit and spin, how to make their own garments. There are many people that don't know how to do that. I think it's important to pass it on.

H: Do you have any fiber animals?

M: I don't because I live in Bellinas, downtown Bellinas, and I have a tiny tiny yard, so I can't have any animals. But I have many farmer friends, and what I do, they know that I'm interested in the fiber of the animals, and so when shearing time comes, I tell them which animals, which fleeces I want to have, and they save them for me, or I'm there and I take them.

H: Oh, that's really good. How long have you been partnering with the fiber farmers?

M: For probably about 15 years, a long time.

H: Yeah, that's really great.

M: I know it shocks you doesn't it.

H: No, I just talked to a lot of fiber farmers in New York and a lot of them they said that they started within the last 5 years, and they're trying to develop relationships with designers. Right now they're just going to fiber festivals.

M: The younger farmers here, the farmer friends I have are actually my age. It's terrible to say, but the reason is because younger farmers, there are none in West Marin. They can't afford to buy land, and the farmers I know are specific to their, they create their flocks, they have cultivated their flocks so they are fiber flocks, they are not for meat, and that makes a big difference. So the Wensleydale, I love them because they have the curls, and I use the fleeces totally. The Shetlands, I have one fiber friend, has a flock of Shetland and Corridale-Finn, where this comes from. The Shetlands are single-coated, unbelievably soft, and I get a lot of fleeces from them. The Corriedale-Finn is a little rougher, but it has more fiber and the spinning goes so fast, it's fantastic to spin it. So the farmers. If I get 20 pounds, that's a lot for me. From one farmer, and then another 20 pounds from another. I'm only myself, so I'm not a big producer, by any means.

H: Do the artisans also sell…

M: Yes, and they know the same farmers that I know and so they get from the same farmers. But sometimes, I'm active in the 4-H, this is an agrarian community, I'm not very active, but 4-H has knitting projects and they all come to the store, they also produce future shepherds. There's one guy who's 17 years old and he has 4 sheep, so I get all his fleeces, just to foster him. So it happens a lot, there's small, you can't really call them farmers, but they have a love for animals, they know the reputation of the store, and we take that.

H: Have you received feedback from customers about the locally produced garments that they've bought from you?

M: They love it. Because if you buy a sweater, it lasts a lifetime. Truly a lifetime. So I tell them "now it's time to change, you have to buy another."

H: And so your sales are mostly in the store?

M: Only in the store.

H: Do you sell anything online?

M: The only sales I make online are through Fibershed, I don't have an Etsy account and part of the reason is, I can't produce fast enough. So that's it.

H: Yeah, I might have seen this on the Fibershed website.

M: Exactly.

H: So have you always worked with animal fibers or…

M: I also work a little bit with linen and, but very little, it's much easier to get animal fiber over here than it is. Nobody produces silk in the close environment, nobody produces linen, so it's much harder to get those fibers, you have to buy them online, and yes, it's nice to work with, but we have so much fantastic wool and alpaca and Angora rabbit here. There isn't really a reason for me to work with other fibers.

H: Oh okay, do you work with organic cotton from Sally Fox?

M: Yeah. In fact on the rack I have one garment that I made, I combined wool with her cotton.

H: Yeah, I think I saw it.

M: And Fibershed is doing a Fashion show, and… (have to break down table for end of event)

H: I just have one more question. How do you think that you're contributing to the sustainable and/ or local culture of dress in Northern California.

M: Totally, that's all I do. Not only in teaching, but in producing. I do work sometimes with other fibers, other things that I have, but I would say that 80% that I produce is from local fibers.

H: Oh, that's really great.

APPENDIX N: Fiber Artisan Designer 3

Thurs Nov 21, 2013

H: When did you first learn about the Fibershed project?
M: It was 2010, I'm pretty sure, right before the… Rebecca began her project. She had a meeting at her mom's house, introducing the idea to a handful of friends, and friends of friends that were working in the fiber arts. Just as a "I'm gonna do this, what can you people do to help me so I'm not naked." And I was one of the ones who volunteered to work with cotton right off the batt, because not a lot of hand-knitters work with cotton as much. It's much less elastic, it's a much more demanding fiber to handle, depending on the yarn I'm working with. So I made her first Fibershed t-shirt and that was how I started. I liked what she was doing.
I've been working with agriculture my whole life. I had been away for about 12 years and had been aware in 2008 when the wool market closed in San Francisco that it was part of a long, slow decline, that that was going to be the death mill for a lot of fiber farmers because that meant that the only way to move their fiber, other than process it and sell it themselves, would mean the commodity market in New Mexico. With what the commodity market pays there, it would cost more to ship the wool to New Mexico on their sale price.

I was experimenting with growing a couple of different strands of indigo at the time, the year before. The following spring I was introduced to Rebecca, and she had been growing indigo successfully, so I stuck with her recommendation of the Japanese strand which grows a million times better than any other strand here. The American strand doesn't do as well as the Japanese strand. So I exclusively grow the Japanese one ever since.

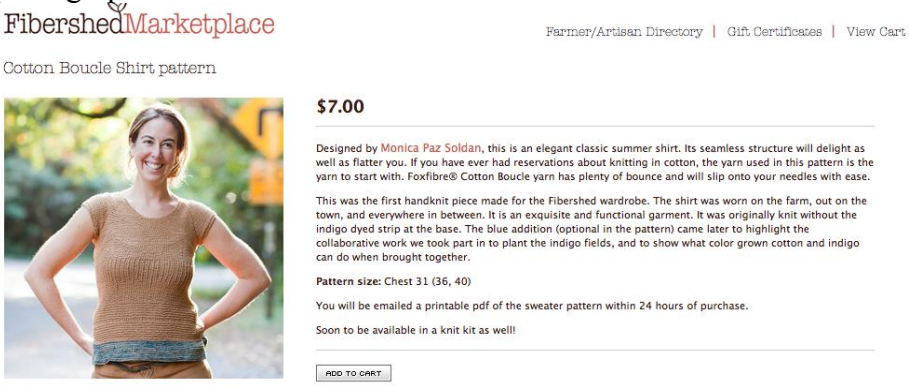
I'm working out of San Francisco and continuing to work with Ranchers in the North County. So yeah, a little more driving.

H: Oh yeah. So for the first Fibershed t-shirt that you made, was it organic cotton from Sally Fox?

M: Yeah, it's the brown Boucle with the blue border at the bottom.

H: Oh okay. Do you know if there's an image of it on the Fibershed website?

M: Yes, there is, there's two pictures on my page. On that page, the brown boucle knit kit, those photographs are of Rebecca's shirt.



H: oh, okay I'll look for them. You mentioned that you grow indigo, do you also have fiber animals, or do you cultivate cotton?

M: No, I'm in San Francisco proper, and I don't even have the land. But I have a large yard, and I use it very successfully. Keeping my dye stock and keeping my food stock fresh. I do plan to re-locate again rurally. Well I'm looking at land now, I've always farmed. For us at the moment, we're looking to move out, gradually over the next four years again.

H: Do you have other natural plants other than indigo that you're growing?

M: Yeah, I'm a farmer and I been growing a large variety of dye plants. The ones that are traditional, that I keep in cultivation here, still in San Francisco. The main ones I use are weld, corasis, and oak berry. Those I keep growing in plots, in my garden, along with the Indigo that has the biggest plot. And I do a lot of wild crafting, especially whenever I go on a wool buy, up north for any reason. I collect what's available.

H: What types of clothing do you create?

M: I've had a custom work business for many many years, I guess probably just 11 now. And I make everything as far as custom orders go. I have a core of clients that like to get their baby shower gifts from me. They usually have a really specific idea, I usually do the really classic baby booties for that. But in general I make everything from hats to slippers …As far as ready to wear, what I put out, in the farmer's market and for sale in stores, I have a line of scarves and hats mainly. 'Cause if I sell wholesale to retail, it's really hard for me to have pricing that's in any way competitive. And so I stick with small, simple items where I can offer something close to a competitive price point.

H: What types of techniques do you use?

M: Well I've been a hand-knitter my whole life, and honestly it's still my preference… I translate a lot of hand-knitting techniques. A lot of my products are hand-knit, and I use a variety of older, more hobbyist knitting machines. So I do have one I just finished refurbishing. That's a more modern for a studio knitter, which is a fabric designer's machine. I'll hopefully be doing a broader range of fabrics with it, both cotton and wool.

But most of the knitwear I make is a combination of by hand and just with old style, like flat bed Brother knitting machine.

H: Do you also spin the fibers?

M: I do spin, I am not really an efficient spinner, and it's something that takes daily practice. Like Marlie, I buy her hand-spun yarn, for a couple of products I make regularly. She is fast and she is very good. Otherwise, the volume of products I need, and the fact that I grow my own dyes, and do all of my dye work, I'm always constantly at a shortage of time. So I buy my wool raw, and then I make a blend. For one, for sheen, for softness, and price. In the Fibershed, has been very highlighted, and some of the flocks have always been popular. Some of those farmers

that have really connected themselves to the hand-spinning crafters community, you can go to the state fair, you can go to the county fair across the north counties here. Fleeces go in, in serious competition over who has the best hand-spinning fleeces. Talking to fast…moving too much. But yeah, they get very competitive pricing. Some of the best wool growers I know in that category regularly charge $25 per pound for their wool. And it's wonderful, it's totally worth it, and if I were to buy it and then pay to have it processed, and grow, dye it myself, in the end you're looking at a $600 sweater. It's something that is dreamy and wonderful, and a few can afford, and it's not the [public] I'm looking to serve. I really carefully curate my wool collection, so that my price per pound, once I have a yarn spun up by a mill and all of my, I have a majority of the yarn I work with done in batches that I make up, I make up the blends, and then they spin up to my specifications. I do that once a year.

H: Is there a specific month or time of year that you do that?

M: Well most wool growers shear their sheep between February and June. Kind of naturally, my wool collecting time is in the late winter to early spring, or through the season, depending on which ranchers I'm looking to collect from, that will change. So usually by the Summer I have a lot, that I'm going to buy for that year, and then I sort it and make the batches because I always want to buy dark wool, and that's expensive.

H: Did you say dark wool?

M: Yes, black fleeces, dark brown fleeces.

H: Do you over dye those?

M: I do, do some overdyeing on those. One of the reasons why I will go ahead and pay $22 bucks for a pound of a young black sheep's fleece is because the volume… sheep are only really black for a few years, they always charge that. And I'll try and get as close to 50 pounds as dark as possible, and that'll still, when they're blended together and spun, will give me a really really dark grey. If I had an alpaca and I spun it pure, those are the only true black yarns you can get without dye. Just to make it cost effective, and it's really nice for me to work with the natural shades too. When they're blended, they just have this natural heathered look, like variegation, little tiny flux of crème in them and they're very pretty, and they over dye nicely. But usually I make sure I have at least 1/3 of my wool that I purchase are colors, so I have that base. You know, urban environment, they just want that dark base.

I do a lot of bright dye work too, it really sets off accents, yes I can make stripes and base the background on crème, but it's amazing how much quickly the item sells when the base back is a dark dark grey, or a deep heathered brown. It's the colors…

H: What inspires your designs?

M: Well, I come from an art background. My original degree was in painting, and I actually still paint, I do a lot of micro-fussy florally, decorative types of paintings, and prints and sketches. I incorporate some of that into the seed packaging that I make, I sell dye plant seeds. And then I'm

hoping, as I finish refurbishing the studio knitter for fabric design, to bring more of those playful, colorful elements into the form of graphic repeats for knit fabric, and also for wovens.

But as far as designing, I'm always really look at what people are wearing, and kind of bringing the inspiration, what it seems that people want, and making it modern, or more authentic, or more classic. I just play with the design. And one of the key things I'm doing is trying to find a design that I can easily translate machines I'm working with to execution. A lot of what I do is larger run, I'm always making something unbelievably fussy and intricate like baby booties, they're so small and take time, but never so much time, and to an extent every single pair I make is a one of a kind because I have fun when I knit by hand. And I have color requests, or style requests as far as whether they say I want "Mary Janes" of I want booties with laces. But beyond, just usually having fun.

But when I looking for something that I'm hopefully going to put into a retail shop, or sell through another market, I'm looking that I can replicate, formulaically, patterns that aren't so spontaneous. Or spontaneous patterns that can translate into repeats easily.

H: Usually when you create clothing for the retail market, how many do you create?

M: My retail outlets are still fairly small and slow, I usually will make a prototype and if it's accepted, I make sure I have enough of that color stock for 10. And sometimes I'll make up a few more of them if I expect them to move quickly, right away, or if it's a shop I'm not doing consignment with, if they want an order of 10, then yeah I'll sit down and make 10. And the few accounts I have, I say 'give me a week' 'cause I can't just pick up the phone and say "we want 10 more of this, or 5 more of that." Give me an order and I'll see you in a week with it. And rarely do I have orders for more than 5 or 10 of one item. On a weekly scheduling myself sort of basis that works. I can sit them in, get them done. Blocked and tagged, and out of here in about a week. If my orders got any bigger than that, yeah, I would probably start developing greater stocking methods and putting more of a …, as it is, I'm processing no more than 150 pounds of wool at a time. It's a good flow right now, and it seems to grow fairly organically. I get plenty of time to decide, oh I need to process, I'll know a month ahead, I should process at least 200 pounds of raw wool, or the shop calls back every week. But we'll see, I've made a lot of effort and process in getting a few lower price point items out there, and they of course do move well. I'll continue to experiment in that direction.

H: Oh, that sounds really great. Do you also sell items online?

M: I do, honestly I am older than I look, I am not a … person, all my children are grown so I can't ask them to upload an app for me, none of them live here anymore. And I don't enjoy spending time on the computer, or online looking at anything. I do have a web store through Fibershed, a page with them, and almost monthly I get one order from there, which is great, and it does offer me the opportunity when someone having a telephone conversation with me, I can send them there even though it is a somewhat limited page. I try and keep it with a broad array. With how much Fibershed does, their reach is really expansive, and the Marketplace, because it is the 'for profit' part, is really quite separated from them, but photo shoots only happen twice a year and though you get a month, or sometimes two months notice, it's sometimes hard for me to

schedule myself into making those. For one, my turnover is really quick, I don't have a big inventory. And my design process is extremely fluid. Even when something sells well, generally within 6 months I'm not making that design anymore. For me it's really hard to get things onto the Fibershed website, with photo shoots twice a year. And they continue to stock yarns, and I can always remake a pattern, and I usually do have a little bit of inventory, or the prototype on hand when something does go live on the Fibershed page. I am capable and respecting that those are up there, and I will sell them, but it's also kind of a back catalog.

I just had 1 web store and honestly it was a bit of a waste of time because I could not bring myself to optimize it, or use it really. And I will probably put another one again, independently, probably in the summer. A different way that won't be for sale, it'll be more of a up to the minute, what's available, call me website. Because that's how I work. The older I get, I realize I do things the way I do them, and though there's merit and change of doing things other people's way, if I've experimented and I'm not doing it, I'm not going to do it, so hybridizing something that works for me, out of the modern world will happen. Whereas otherwise, I'll keep burning it forever, on what to do, a non-sale website at some point by late spring.

So yeah for me, commerce is definitely helpful, it's out there, and as far as my constraints, it's the smallest one. I sell to people I meet face-to-face. I do use the Fibershed Farmer's Market stand in Marin, and that's a good sell for me, I mean some weeks I sell nothing though them, it only happens on Saturday, some weeks I sell several.

For me, just keeping retail outlets here that I supply small amounts of stuff to, and it keeps going out in small amounts, is a lot more sustainable for me.

H: What information do you communicate about your products?

M: I have hangtags that has a little tiny blurb about my studio workshop, and all of my labels include that the garments are organic, that they're Fibershed certified, and that they're locally produced on vintage equipment.

H: Have you received feedback from the customers that you sell to?

M: Well, many of the customers I have are the same customers I've had for years. And so I know they're happy. Some of them are a little possessive about having the only one of this, or you know, hand-spun alpaca. I would say yes, my feedback is overwhelmingly positive. I have people that follow me specifically because they want something unique, something that's very pure. I also have people that don't care about that at all and they just want a 'one-of-a-kind' custom something. So my customers run the gamut too. So I would say within the last 5 years, probably more of them have become aware and more appreciative of the organic, environmental, socially responsible aspect of the business.

H: How do you think the Fibershed project has supported your work?

M: The Fibershed project has supported my work tremendously. As I said, I was farming full time still when I met Rebecca, and she shortcut my research on growing different strains of

indigo by at least a year by sharing all of her experiences and information with me. And also, by providing me with a broader community of ranchers, I know more ranchers through Rebecca organizing the social efforts than I did before. And especially since I'm not an online person, all of the connections she's given me have been really really valuable.

And I do have the website, which gives me a venue to show people what I'm doing, and it definitely brings people to me, I have, if nothing else, I've send scarves to Europe now and a couple to Africa. Which is interesting, as local movement, making things local, it's always funny to me when I go ship something internationally.

Magic of the indigo. People get the idea of it, the presentation of it, just having a little bit of it, is still something you can't decide you want and walk out and get it in most places. In Indonesia, I'm sure, parts of Central America, I'm sure, but here, anywhere else outside of the Bay area, getting an Indigo blue hat that was domestically grown, or an Indigo blue anything that's purely botanical in color, is just not that easy. And people really love the color, it has, it just has something special to it. I get many shades, and I over dye and under dye it to increase the number of shades I get from it. It's just a very vibrant, very living color and I think people respond to it.

And Rebecca's notion of the whole project with her Indigo has definitely brought my work a lot more attention. And people just looking for something Indigo, ordering custom projects from me because they realize, they can't find what they're looking for, but they can ask for what they want and get it.

H: Are you participating in the Fashion Gala?

M: I am, I will be providing one look to their runway show.

H: Oh what type of garment, or fiber product is it?

M: It is a, I am still, I was actually just talking to the woman I am collaborating with on it. And she is having to move again, it's San Francisco, everyone's always having to move. So she's dropped out and we had a skirt and a blouse we were working on together. She was going to make the skirt, actually just this afternoon, one of those phone calls I let go, was at the end of that. So it's a little bit up in the air. I will take over her half of it and make the skirt as well, or I'll refine it and make my blouse into a dress. Basically when I'm done drawing on Sunday I will know.

H: Okay, are you hand-knitting it, or using a machine to knit?

M: I will be hand-knitting some of it, machine-knitting some of it, possibly using some jersey fabric of Sally's component. Yeah, a little bit of all of that will happen. Hand-knitting…

H: Oh, do you know what fiber you're using for the knitting?

M: I think it will mostly be out of fox cotton. But I may change my mind and make the skirt wool if I go that direction.

H: Do you know what colors you are going to use?

M: It will probably mostly be blue and beige.

H: Oh, I'm excited, I want to see it.

M: Alright, if I get a good shot of it, or even if I take a picture of it on the floor, I'll send it to you. I'm trying to get a hold of the model who's supposed to model it, that the other, I can't go any further, I got her measurements and I have no hip measurement. I'm not starting a skirt without a hip measurement.

H: O, yeah, how long does it usually take you to make a garment?

M: Generally it depends on the complexity of what I'm doing and why. But generally I like to start and finish something in a day. I generally do. With scarves and hats I generally do several in a day.

For this dress, I imagine I will be working on it, or a skirt, I will probably be working on it full time for 3 or 4 days.

H: okay, it's so much work!

M: Well if it's special, or fancy, or fussy.

H: So I just have one more question, how do you think you're contributing to the sustainable, or local culture of dress in Northern California?

M: Well, I am providing accessories and garments that are environmentally sustainable and purely local in a broad range of styles and sizes. I do everything from shawls to baby wear to stuff that teenagers are even fine going skiing in.

H: Oh that's really great. Thank you so much for taking time to speak with me. I really appreciate it.

M: Oh no problem Helen, I think that the biggest effort in changing the way people dress is definitely education. I think with the news media finally picking up some of the terrible garment industry stories in the last year, I still think that the average person doesn't realize that not just a part of, but the entirety of their material culture is supported and paid for with human suffering and that is truly real. And I think that some people are able to shy away from knowing the truth, but I think more people realize that the truth is there and you can't avoid it. It's not sustainable, and as we become more connected it becomes too unpleasant to people to realize. If I go and buy a new pair of stretch pants at Target, I've just admitted that I think someone should suffer so I can have whatever I want. And until that reality checks into everyone's brain every time they

head out the door, we're going to have a global culture that perpetuates where we've been, which isn't sustainable. We'll start evaluating every single little tiny, daily decision and figure out, makes enough room for everyone.

And that is really why I do what I do. I've got 3 kids and all 3 of them are very happy people, and nothing makes me happier. And all three of them have serious questions about what to do with their lives, what makes sense. And what does it mean to plan for the future. Or be prepared, or do the right thing. It's very confusing to everyone and it twists, especially young people. So I would just love that if any of them decide to have kids, that when they're kids go out into the world, it's not so overwhelming for them to know. It's like if they have to create a pathway, which is healthy, but for the average person, it can be overwhelming, what does a simple life mean, where do I go to school, what do I learn, where do I move, what do I do? I really hope that while this generation is getting stuck with such a brunt of work in figuring that out, that maybe in the next one, or the one after that, they'll be moving forward happily with energy, confidence, and assurity. This is what I'm going to do and it's the right thing to do. Whether than sit there and say 'gosh I don't know.'

H: Yeah, what inspired you to go into the path from painting to becoming a fiber artisan?

M: Well I grew up on my grandfather's cotton farm ranch, so it formed a lot of my reality from the very beginning. All of my time from the age 4 forward was spent executing fiber projects, we made charity quilts, tons of them every summer. It was a goal of my grandmother to make 'x' number of charity quilts every summer, give them away in the Winter. And she even went to the Gamma factory that still existed where we were living and got all of their cutting room scraps, so we had the raw material to make more quilts.

And our neighbors were sheep ranchers, so I've always been sewing and quilting and knitting, all of these things. And for me art is fun, it's what I do, into the deeper part of myself to tap into that greater consciousness that gives us flow of beautiful things. My grandparents are Danish and extremely proud, the ones that raised me, I'm half Peruvian obviously I don't look Danish. My Danish grandparents that raised me, it's an ethic of self-sufficiency, simplicity, zero-waste. They're very sustainable, very green people despite being antiques. When I had my son I was 25, I wasn't that young, and even before then, just trying to find socks that didn't have any objectionable chemical or dyes, it's just so hard. And when you have a tiny baby, it's even harder. And with my standards, there was nothing I could buy for him. I spent a lot of time making diapers. Making diaper covers, making t-shirts, and anyway, there's a lot of joy in that. I think that bringing creativity to the functional is a real source of joy. Open a flood gate on something that's necessary, and to make it into a celebration. And so, I've approached my work with fiber in that way.

I tend to wear the Fibershed things I have from others when I go out to events, most of my clothes is an amalgamation of recycled things, I like to cut sweaters up and make them into skirts. And so for me, it's playing, and it also has a purpose of conveying successfully to my children that I do care, I do want people to have choices about things. Part of what I'm do in a very very tiny way is, I offer people a choice when they want something warm, when they want something cozy. I offer them a choice that is responsible in every way, and that feels good.

Because I personally very strongly believe if everyone grew up surrounded with all of their functional needs, crafted by individuals.

Kids have their favorite toy, imprinted on a plaster mold, and then cast into clay, put on the side of their cereal or soup bowl, and that toy immortalized forever in the form of a clay sculpture, that's a functional thing. And of course we only have one of those left because they do get dropped, eventually they break. But I think if you grow up in that sort of environment, it's not just the aesthetic, it's not just things being pretty, pitchy, or whatever vain, gothic, there's such a broad range of imagery that we find repulsive and other people can't live without, but the vibrational reality. When anything is made, it's matter of energy being compressed into a visual manifestation. And sorry, my husband's a physicist. But when that happens, the energy that is used, and the energy that is intentioned in that object, is embedded in it. So when you have things that are plastic injection molded in China by political prisoners, or wage slaves, or just a miserable person, and there's a massive amount of negatively formed electricity through the form of coal power. Heating that plastic to inject the mold, you have something with a deeply toxic, and energetically negative vibration to it. It's not just in the air that it's off gassing into, it's emotionally toxic and it's energetically toxic. When we start applying physics and real reality of our lives, we will realize how impoverished we have become as a human culture. All of the wonderful, positive things we did for each other by creating in manifesting a bowl, a plate, a pear, a house, a barn, clay, whatever, when these things are crafted with intention by a happy person, the environment that is created around that object, benefits from the vibration. And when you have a house full of crap from Ikea and Target, and everyone's drinking out of plastic cups, it's no wonder we're where we're at. When every single piece of useful, decorative, or functional furnishing was made by hand, made not toxically, that goes into the vibrational level that goes into the emotion and energy executing it. What you get is a whole different reality, we are living in a toxic, injection molded, negative reality, and we keep replicating it.

And so, to me, I do what I do because it delights me. And even when I have made too ambitious of an order, and I've made a price point just a little bit too low to give this opportunity to say 'yeah I'll take 10 or 15.' Sometimes that means knitting until 11 o'clock at night, doing finishing work while I'm visiting with friends, or traveling somewhere. In the end, making minimum wage. And if it happens, I'm happy because the order is there, I executed it, I still had money to go to my rent and groceries. And something positive went out into the world. And will take the place and be used instead of something that was negative. The more people that have the opportunity, and the price point makes it available, then we'll get people to start to decide. 'Well you know what, maybe I'm only going to get one sweater this year, and I'm going to make it a positive one.'

Because I love one of the uncovered statistics that, it was before 1919, the average working individual owned 2 or 3 pairs of clothes, from hats to shoes, that was all the clothing an individual had. And one set of clothes on average cost the equivalent of a year's wages. So that is the economic reality of sustainability.

I weave by hand and mechanically, even mechanically it is an intensive process. And that is respect that our clothing deserves, and that's what we're pushing on to people who have lost their lives to working 10 hour days in a factory. That is the cost we push off. We take their life

away, and they can do nothing, because we have been led to believing that this is sustainable. It's no one's fault, well it's capitalism's fault, because it abstracts that and drives it like a maniacal beast.

So to be sustainable, our biggest challenge is education, I don't believe we'll get there until I can look at your average high school graduate in the eye and say you're going to have no more than 3 sets of clothes at a time.' That's sustainable, when you stop that, you stop taking the resources of your great grandchildren. And you don't even have that opportunity because your parents took those resources from your great grandchildren.

Anyway, that's my attempt at staying positive when things look so stacked against success. So on a daily level I do something that I can feel good about. Every time something leaves the workshop, I want someone else to have something different in their reality, and that's enough, that makes me happy.

H: Yeah, that's really great.

APPENDIX O: Fibershed Founder Sample Interview Questions

How do you think the Fibershed project in Northern California has influenced the culture of dress (towards sustainability?), if it has at all?

Why do you think it is important to have educational outreach/ workshops in relation to fiber arts (spinning, weaving, natural dyeing, etc.)? Is it influenced by the do-it-yourself movement?

Have you seen people create an entire garment or outfit with involvement in the shearing to knitting/ weaving/ sewing processes? Based on your experience with the Fibershed project, do you think involvement in the entire clothing production process is happening more or less since 2011?

How valuable do you think the creation of locally produced hand-made clothing is for the creation of a sustainable culture of dress? How does it relate to ecology, economy, equity in terms of manufacturing or economic development?

How valuable do you think the creation of locally produced machine-made clothing is for the creation of a sustainable culture of dress? How does it relate to ecology, economy, equity in terms of manufacturing or economic development?

Do you know who is buying the artisan's clothing featured on the "Fibershed Marketplace?" Do you know if the artisans are receiving any feedback, or photos from customers?

Is there a way you are measuring the social/ economic success of the Fibershed Project/ Marketplace)? (surveys, interviews, sales of clothes?)

APPENDIX P: Fibershed Founder Interview 1

Nov 25, 2013

H: The first question is about your book "Harvesting Color," there's a part where you talk about visiting a Navajo reservation and learning from a fiber artisan. And I was wondering how you think the local culture of textile and clothing production in the reservation compares to the Fibershed project.

R: How textile production, or clothing manufacturing?

H: Both.

R: Well textiles are being produced on the reservation, and they're primarily all manufactured by hand, from hand-spinning of the Churro wool to warping very tall tapestry looms. So they spin, they warp their looms with yarn that they've spun, and they do a lot of their dye work still. Natural dyes are part of it, not as much as it used to be, and that's pretty much how rugs are woven. Some ponchos, maybe made out of those big woven pieces, but primarily it's all rug weaving.

For clothing and garment manufacture, I didn't view anyone producing garments, most everyone on the reservation, that I observed, really were trash poor, even though they're culturally rich. Getting involved in clothing manufacture is not really traditional. To buy cloth and sew it up, I think, I'm sure as it was traditional to our grandparents, but just like today, we're not sewing, they're not sewing either.

So yeah, and how it compares to Fibershed garment manufacturing, the similarity is that we really are honing in on locally farmed raw fiber and so are the Navajo in their rug production. Our goal is not to just create housewear, while those are important, and rugs are extremely utilitarian, clothing is consumed at a much higher rate and so we wanted to make sure, and clothing has a much larger footprint than house wares generally speaking, because it's such a consumed item.

We really focus on trying to create garments, things that people wear on their skin, things that people wear out, that they need more of. That kind of consumption. We're trying to green and perfect, and localize, regionalize that and I don't see that application at the same level for local fiber. The application for us is garments, the application for them is rugs.

H: Okay, thank you. The next question is how do you think the Fibershed project in Northern California has influenced the culture of dress, whether it's about the local production aspect, or sustainability.

R: I can only speak to what I've viewed in my own region, which is, I haven't done any formal research, but anecdotally speaking, people have very much communicated to me that they can't dress conventionally, they have a very hard time buying anything new. It started with the inspiration that was provided by my family and now that's gone into a wider circle. And I would say most anyone that comes into contact with the project and does any minimal research online

to view ‘why a Fibershed’ that page on our website, very few people with any real ethic and care for the earth and the ability to sustain human life, and then feel __ for purchasing clothes where they don’t know the source. So I think that is one of the impacts.

Have we made clothing more accessible—good clothing? We’re starting to. Not fully. Like you bought a hand-knit sweater.

H: Yeah. The next question is why do you think it’s important to have educational outreach or workshops in relation to fiber arts like spinning, weaving, natural dyeing.

R: I think it’s important on two levels, some people are really going to take this whole spinning, weaving, and they’re really probably going to use it. There’s one group that might even start small artisanal businesses, make clothes for their own family. Something on those lines, I’ve seen that time and time again. With natural dye training, or weaving training, people go a lot of them go out and do it. And the other sector is people who go to really appreciate the amount of work it takes to produce a garment, and they start becoming more sensitive to price, and they stop complaining about things related to price. So that’s what I have noticed, in terms of educational impact.

H: How do you think the Fibershed project relates to ecology, economy and creating equity in the region?

R: Do I think it does?

H: Yeah.

R: Yes, to all of those. You said economy, ecology…

H: And equity.

R: Well the equity piece is still really a challenge. Our educational events are very equitable. We have student rates, we try to make our educational symposiums affordable, general public stuff is fairly accessible. I think we got the economy and the ecology, we’re really starting to focus on those.

Equity I think is an issue around affordability of these garments, and what the current living wage is. How in the first years, we’re ever going to be able to make those very artisanal clothes “affordable,” competitive with Wal-Mart prices. In that way our finished garments currently are not accessible to a certain demographic. In terms of people making minimum wage, or even more than that.

H: So the Northern California Fibershed, it’s Marin County and it radiates 150 miles out of that?

R: Yes.

H: Okay. What feedback have you received about the Fibershed non-profit section, and the for-profit Marketplace?

R: Feedback about the non-profit has been generally very positive. It was a hard sell initially, but when people started realizing how synonymous it was with food systems, then it became a lot easier for everyone to accept fiber systems as the next step in our process in creating healthy, agricultural systems. Healthy human wear systems.

The for-profit, well one thing, there's 2 challenges culturally. The prices, because it's artisanal, but people supported it, it's done well. But I would say one of the other challenges is you're having farmers and artisans sell their garments, and none of them have the time to get to the post office very frequently. We're not an economy scale, so there's huge delays in getting your items from some of the farmers, not all of them. And that's just the way it is because these people are doing, they're running ranches, they're running a farm, the time it takes, it's a slow for-profit, slow time.

H: Is there a way that you're measuring the economic success of the Fibershed marketplace?

R: We have a grand total in terms of how much money we've made in the last 18 months, for two years. I want to say it's 13 really active members. One of them said her business actually began because of the Marketplace. Another said she's so excited, she sold more on the Marketplace than she's sold on her Etsy and her Farmer's Market booth. So we are starting to do that work. I'm actually going to meet with an MBA intern via phone I think on Dec 2, and we're going to start looking at the Marketplace more strategically and understand what kind of social and economic impacts we've made with it. Right now it's very general, it's anecdotal. It's positive for those involved. Yes, we have business, they don't want to give it up. Every time I say "You don't return emails very often" they're like "Oh, but we love it."

H: Oh, so is anyone invited to become a Fibershed designer or artisan?

R: Well we're working on opening it up to more. Right now we use something called Big Cartel and it's on online template and it limits everything to 300 products. And we have a volunteer book keeper, so the more people we add, the more complexity is created for our book keeper who is a volunteer and have limitations because we have an online template. Those two things we're working on changing and opening the door for sure, for our artisans.

We're actually thinking of doing a raw fiber national marketplace for all the different Fibersheds.

H: Yeah, that would be really great. One of the artisans mentioned that there's a Fibershed Farmer's Market stand in Marin, are there a core set of artisans that sell at the stand each week or does it rotate?

R: At the Farmer's Market, they rotate.

H: Do you know if there's other Fibershed Farmer's Market stands in other places?

R: Emerging probably, there's one in Oakland, and one in Westborough, so we have 2, I haven't had documentation of people starting a purely natural dye, local label, labor thing. Yeah, the Farmer's Market, the Westborough, has done pretty well for most of those artisans. I would say.

H: So, to sell at the Farmer's Market stand, they have to have the Fibershed certification?

R: They do.

H: Can you talk more about what it is?

R: Certification is just to make sure they're using a fiber within the geography, a dye within that geography, and there's labor, or they're working with labor that's in that geography. So it's a bioregional product and that's really what we're certifying, that it's local, we're working on organic, it's something we strive for with our producers, our farmer producers, not all of them are certified organic. So we can't certify the fiber, some of it we can't certify organic, but we appeal to our producers to start moving in that direction.

H: Is the Fibershed certification free?

R: The certification, it comes with being a producer, there are certain benefits. It's $40 a year, but we, what we do is we put you on our website, which is minimal, but you get first dibs on any of our educational events, like you can have a booth there for basically 10% of your sales, which is less than a Farmer's Market. Everyone at that Symposium for instance had a very affordable rate for being there, and the 30% of commission based on sales. That attribute of being a producer, they can sell first and foremost at our events, we promote you at events, the fashion gala is about them. Yeah, so we have events that are just focused on the producers completely. We've invested, in this last event, we've invested over $20,000 just in our producers. And that program doesn't pay for itself, so those people get a lot of publicity for almost nothing. So I hope they appreciate that, I don't know that they always do, but we don't rub it in their face, we're spending all this money to promote you, we never say that. But just behind the scenes, so you know there's a lot of work that goes into promoting them.

H: Yeah, I can imagine. The last question is how involved are you in helping the different Fibersheds develop, like if you're involved at all, or if it's just the information that's on the website?

R: Right now it's just the information that's on the website, but this coming year there will be a book written, it will probably come out in 2015. On the different Fibersheds, how one is started, it's instructional, and narrative. We're working on helping them more, but right now it's totally out of our bandwidth, for 2013 it was. For 2014, we're working on creating the written word to support it, 2015 I see as a good year for that.

H: Oh, that sounds really great! Thank you…

APPENDIX Q: Knitwear Consumer Consent Form

Project Title: Evaluating the Slow Fashion Supply Chain: Local animals, fibers, and knitwear

Principal Investigator: Helen Trejo
Fiber Science and Apparel Design
hxt2@cornell.edu

Faculty Advisor: Professor Tasha Lewis
Fiber Science and Apparel Design
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Please read the following information about the study:

This study aims to gain insight about marketing knitwear on the Internet. Participating in this survey will provide insight to fiber farmers, and apparel designers who are interested in consumer input.

We anticipate that your participation in this survey presents no greater risk than everyday use of the Internet. Your information will remain confidential in a Cornell online survey. Your participation is voluntary, you may refuse to participate before the study begins, discontinue at any time, or skip any questions/ procedures that make you feel uncomfortable. Your completion of the questionnaire indicates that you agree to participate in this research study and that you are over 18 years old.

If you have questions or concerns regarding your rights as a subject in this study, you may contact **Helen Trejo** at **hxt2@cornell.edu**, or the Institutional Review Board (IRB) for Human Participants at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint online at www.hotline.cornell.edu or by calling toll free at 1-866-293-3077. Ethics point is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

APPENDIX R: Knitwear Consumer Survey

Please review the image below carefully (1 of 9 possible conditions presented):

Think of this sweater as if it were a person. What personality characteristics would you give it?

Please read the following statements carefully and rate your perception of this sweater:

This sweater is not like me	O	O	O	O	O	This sweater is like me
I do not identify with my description of the sweater	O	O	O	O	O	I do identify with my description of the sweater
This sweater does not match me	O	O	O	O	O	This sweater matches me
When I consider my own personality and compare it to the description I provided in the previous question, I am dissimilar to the sweater	O	O	O	O	O	When I consider my own personality and compare it to the description I provided in the previous question, I am similar to the sweater
I think this sweater is not beautiful	O	O	O	O	O	I think this sweater is beautiful
I would not like to have this product	O	O	O	O	O	I would like to have this product
I think this sweater is not attractive	O	O	O	O	O	I think this sweater is attractive
I think this is not a good sweater	O	O	O	O	O	I think this is a good sweater

Consider the types of people who prefer this product:

I do not identify with these kind of people	O	O	O	O	O	I do identify with these kind of people
I am not like these kind of people	O	O	O	O	O	I am like these kind of people
The way I see myself is not similar to these kind of people	O	O	O	O	O	The way I see myself is similar to these kind of people

Please read the following statement carefully (1 of 2 scenarios presented). It refers to the sweater shown in the beginning of the survey.

Ashley purchased the sweater in New York before she left to attend college out of state. She appreciated the hand-made quality and realized she would have a low-carbon footprint if she purchased the sweater. She enjoys wearing it because it is soft, warm, and reminds her of her hometown.

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
This sweater has no special meaning to Ashley	O	O	O	O	O
This sweater is very dear to Ashley	O	O	O	O	O
Ashley has a bond with this sweater	O	O	O	O	O
This sweater does not move Ashley	O	O	O	O	O
Ashley is very attached to this sweater	O	O	O	O	O
Ashley feels emotionally attached to this sweater	O	O	O	O	O

Now think about how you make decisions about purchasing clothing. Indicate the degree that you agree with the following statements:

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
It is not right to purchase foreign products because it puts Americans out of jobs	O	O	O	O	O
Only those products that are unavailable in the U.S. should be imported	O	O	O	O	O
It may cost me in the long run, but I prefer to support American products	O	O	O	O	O
American products, first, last, and foremost	O	O	O	O	O
It is always best to purchase American products	O	O	O	O	O
American people should always buy American-made products instead of imports	O	O	O	O	O

Purchasing products made from locally grown fiber is…

Useless	O	O	O	O	O	Worthwhile
Bad	O	O	O	O	O	Good
Worthless	O	O	O	O	O	Beneficial
Unwise	O	O	O	O	O	Wise

Please read the following statements carefully and indicate if you agree or not:

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
I prefer to buy locally	O	O	O	O	O
I try to buy products that are from STATE	O	O	O	O	O
I like to shop at locally owned businesses	O	O	O	O	O
I am interested in supporting local agriculture	O	O	O	O	O
It is important to me to know the owners of the stores I shop	O	O	O	O	O

What state are you from?

What is your gender?
__Male
__Female

What is your race?
__Caucasian
__African-American
__Native-American
__Latina
__Asian
__Inter-racial: _____

Please indicate your age:
__18 to 24
__25 to 44
__45 to 59
__60 to 84
__85 and over

Please indicate your profession:
__Undergraduate student
__Graduate student
__Post-doctoral student
__Faculty/ Staff
__Other: _____

What is your major/ department?

Please estimate your annual income:
__Less than $10,000
__$10,000 to $24,999
__$25,000 to $49,999
__$50,000 to $74,999
__$75,000 and over

Please provide your email address to enter into the $25 raffle:

APPENDIX S: Exploratory Factor Analysis of all Scales

Variable	Item	Factor Loading
Product personality congruence (M= 2.63; SD = 1.142) (Cronbach's α = 0.92, variance explained = 81.38%, Eigenvalue = 3.255)	• The sweater is like me • I do identify with my description of the sweater • This sweater matches me • When I consider my own personality and compare it to the description I provided in the previous question, I am similar to the sweater.	0.91 0.904 0.907 0.887
User image congruence (M= 3.14; SD = 1.143) (Cronbach's α = 0.94, variance explained = 89.24%, Eigenvalue = 2.677)	• I do identify with these kind of people • I am like these kind of people • The way I see myself is similar to these kind of people	0.920 0.959 0.951
Product attachment (M= 3.85; SD = 0.67) (Cronbach's α = 0.829, variance explained = 56.826%, Eigenvalue = 3.41)	• The sweater has no special meaning to Ashley* • The sweater is very dear to Ashley • Ashley has a bond with this sweater • The sweater does not move Ashley* • Ashley is very attached to this sweater • Ashley feels emotional attached to this sweater	0.435 0.835 0.853 0.674 0.811 0.827
Product evaluation (M= 3.29; SD = 1.137) (Cronbach's α = 0.895, variance explained = 76.694%, Eigenvalue = 3.068)	• I think this sweater is beautiful • I would like to have this product • I think this sweater is attractive • I think this is a good sweater	0.910 0.853 0.931 0.804
Consumer ethnocentricity (M= 2.82; SD = 0.751) (Cronbach's α = 0.865, variance explained = 59.68%, Eigenvalue = 3.581)	• It is not right to purchase foreign products because it puts Americans out of jobs • Only those products that are unavailable in the U.S. should be imported • It may cost me in the long run, but I prefer to support American products • American products, first, last, and foremost • It is always best to purchase American products • American people should always buy American-made products instead of imports	0.742 0.732 0.675 0.824 0.811 0.837
Local Fiber Attitude (M= 4.56; SD = 0.569) (Cronbach's α = 0.862, variance explained = 72.59%, Eigenvalue = 2.904)	• Purchasing products made from locally grown fiber is worthwhile • Purchasing products made from locally grown fiber is good • Purchasing products made from locally grown fiber is beneficial • Purchasing products made from locally grown fiber is wise	0.889 0.884 0.852 0.779
Local consumption (M= 3.864; SD = 0.583) (Cronbach's α = 0.802, variance explained = 57.84%, Eigenvalue = 2.892)	• I prefer to buy locally • I try to buy products that are from STATE • I like to shop at locally owned businesses • I am interested in supporting local agriculture • It is important to me to know the owners of the stores I shop	0.871 0.695 0.828 0.772 0.607

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